

# SHARP

# SERVICE MANUAL

SE00LC24LE210

Issued: 05<sup>th</sup> October 2010

## LED LCD COLOUR TELEVISION

DVB-T / DVB-C (HDTV), PAL B/G, I / SECAM B/G, D/K, L/L' SYSTEM COLOUR TELEVISION



## MODELS

**LC-24LE210E**

**LC-24LE220E**

**LC-24LE210E (FCB)**

In the interests of user safety (required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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## SHARP CORPORATION

This document has been published to be used for after sales service only. The contents are subject to change without notice.

## ELECTRICAL SPECIFICATIONS

### Specifications

|                                     |                                      |                              |  |
|-------------------------------------|--------------------------------------|------------------------------|--|
| Item                                |                                      |                              | LCD COLOUR TV, Model:<br>LC-24LE210E, LC-24LE220E, LC-24LE210EFCB.   |
| LCD Panel                           |                                      |                              | 24" TFT LCD LED TV   |
| Resolution                          |                                      |                              | 6.220.800 dots (1.920 x 1.080 pixels)  |
| Video Colour System                 |                                      |                              | PAL/SECAM/NTSC 3.58/NTSC 4.43/PAL 60   |
| TV<br>Func-<br>tions                | TV Standard                          | Analogue                     | CCIR (B/G, I, D/K, L/L')   |
|                                     |                                      | Digital                      | DVB-T (2K/8K OFDM)(H.264), DVB-C (Only Lx220)  |
|                                     | Receiving Channel                    | VHF/UHF                      | E2–E69 ch, F2–F10 ch, I21–I69 ch, IR A–IR J ch (Digital: IR A ch–E69 ch)   |
|                                     |                                      | CATV                         | Hyper-band, S1–S41 ch  |
|                                     | TV-Tuning System                     |                              | Auto Preset 999 ch: non-Nordic / 9999 ch: Nordic (ATV: 99 ch), Auto Label, Auto Sort   |
|                                     | STEREO / BILINGUAL                   |                              | NICAM/A2   |
| Viewing angles                      |                                      |                              | H: 176°, V: 176°   |
| Audio Amplifier                     |                                      |                              | 6 W x 2  |
| Speaker                             |                                      |                              | (25 mm x 100 mm) x 2   |
| Terminals                           | TV Antenna                           |                              | UHF/VHF 75 Ω Din type (Analogue & Digital)   |
|                                     | SERVICE                              |                              | Ø 3.5 mm jack  |
|                                     | SCART                                |                              | SCART (AV input, RGB input, TV output, Y/C input)  |
|                                     | PC INPUT                             |                              | VGA (D-Sub 15pin), Ø 3.5mm jack  |
|                                     | COMPONENTS                           |                              | COMPONENT IN: Y/PB(CB)/PR(CR), RCA (AUDIO R/L)   |
|                                     | HDMI1                                |                              | HDMI, Ø 3.5mm jack   |
|                                     | HDMI2                                |                              | HDMI, Ø 3.5mm jack   |
|                                     | HDMI3                                |                              | HDMI, Ø 3.5mm jack   |
|                                     | AV                                   |                              | RCA connector (AV input)   |
|                                     | MEDIA PLAYER/ TIME-SHIFT/<br>USB REC |                              | USB 2.0 HOST (A type)  |
|                                     | DIGITAL AUDIO OUTPUT                 |                              | RCA S/PDIF digital audio output.   |
|                                     | C. I. (Common Interface)             |                              | EN50221, R206001, CI+ specification (Only LE220)   |
| Headphones                          |                                      | Ø 3.5 mm jack (Audio output) |  |
| OSD language                        |                                      |                              | Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Italian, Latvian, Lithuanian, Norwegian, Polish, Portuguese, Russian, Slovak, Slovene, Spanish, Swedish, Turkish, Ukrainian, Byelorussian, Romanian. |
| Power Requirement                   |                                      |                              | AC 220–240 V, 50 Hz  |
| Power Consumption (IEC62087 Method) |                                      |                              | 30 W (0.25 W (Standby))  |
| Weight                              |                                      |                              | 4,9 Kg (Without stand), 6 Kg (With stand)  |
| Operating Temperature               |                                      |                              | 0 °C to +40 °C   |

### Environmental Specifications

|  |     | 24"    |
|--|-----|--------|
| *1 On-Mode (W) (HOME MODE)                             |     | 25 W   |
| *2 Energy-Save-Mode (W)                                | ECO | 22 W   |
| *3 Standby-Mode (W)                                    |     | 0.25 W |
| *4 Off Mode (W)  |     | 0.18 W |
| *5 Annual Energy Consumption (kWh)                     |     | 37 kWh |
| *6 Annual Energy Consumption<br>Energy-Save-Mode (kWh) | ECO | 31 kWh |

\*1 Measured according to IEC 62087 Ed. 2.

\*2 For further information about the Energy Save function, please see related pages in this operation manual.

\*3 Measured according to IEC 62301 Ed. 1.

\*4 Measured according to IEC 62301 Ed. 1.

\*5 Annual energy consumption is calculated on the basis of the On-Mode (HOME MODE) power consumption, watching TV 4 hours a day, 365 days a year.

\*6 Annual energy consumption is calculated on the basis of the Energy-Save-Mode power consumption, watching TV 4 hours a day, 365 days a year.

#### Cautions regarding use in high and low temperature environments

- When the unit is used in a low temperature space (e.g. room, office), the picture may leave trails or appear slightly delayed. This is not a malfunction, and the unit will recover when the temperature returns to normal.
- Do not leave the unit in a hot or cold location. Also, do not leave the unit in a location exposed to direct sunlight or near a heater, as this may cause the cabinet to deform and the LCD panel to malfunction. Storage temperature: -20°C to +60°C.

- As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

## IMPORTANT SERVICE SAFETY PRECAUTION

Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:

### WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.

**CAUTION:** FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE REPLACE ONLY WITH SAME TYPE F101 (T2.5AH / 250V)

## BEFORE RETURNING THE RECEIVER (Fire & Shock Hazard)

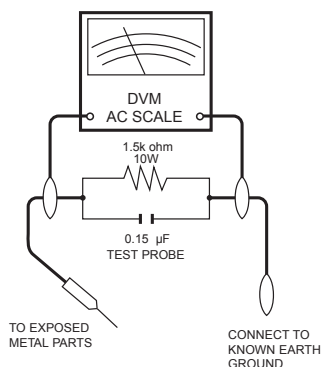
**Before returning the receiver to the user, perform the following safety checks:**

1. Inspect all lead dress to make certain that leads are not pinched, and check that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulation materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 220~240 volt AC outlet. (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 $\mu$ F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to an earth ground.
  - A true RMS reading multimeter should be used for this test, especially where the equipment uses a switch mode power supply which may result in very non-sinusoidal leakage current.
  - Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

All checks must be repeated with the AC cord plug connection reversed. (If necessary, a nonpolarized adaptor plug must be used only for the purpose of completing these checks.)

Any reading of 1.05V peak (this corresponds to 0.7 mA. peak AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the monitor to the owner.



## SAFETY NOTICE

Many electrical and mechanical parts in LCD television have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠".

For continued protection, replacement parts must be identical to those used in the original circuit. The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire or other hazards.

## PRECAUTIONS FOR USING LEAD-FREE SOLDER

### 1 Employing lead-free solder

"ALL PWB" of this model employs lead-free solder. The LF symbol indicates lead-free solder, and is attached on the PWBs and service manuals. The alphabetical character following LF shows the type of lead-free solder.

Example:

**LF**a

Sn-Ag-Cu

Indicates lead-free solder of tin, silver and copper.

**LF**n

Sn-Ag-Ni

Indicates lead-free solder of tin, silver and nickel.

### 2 Using lead-free wire solder

When fixing the PWB soldered with the lead-free solder, apply lead-free wire solder. Repairing with conventional lead wire solder may cause damage or accident due to cracks.

As the melting point of lead-free solder (Sn-Ag-Cu) is higher than the lead wire solder by 40°C, we recommend you to use a dedicated soldering bit, if you are not familiar with how to obtain lead-free wire solder or soldering bit, contact our service station or service branch in your area.

### 3 Soldering

As the melting point of lead-free solder (Sn-Ag-Cu) is about 220°C which is higher than the conventional lead solder by 40°C, and as it has poor solder wettability, you may be apt to keep the soldering bit in contact with the PWB for extended period of time. However, Since the land may be peeled off or the maximum heat-resistance temperature of parts may be exceeded, remove the bit from the PWB as soon as you confirm the steady soldering condition.

Lead-free solder contains more tin, and the end of the soldering bit may be easily corroded. Make sure to turn on and off the power of the bit as required.

If a different type of solder stays on the tip of the soldering bit, it is alloyed with lead-free solder. Clean the bit after every use of it.

When the tip of the soldering bit is blackened during use, file it with steel wool or fine sandpaper.

Be careful when replacing parts with polarity indication on the PWB silk.

Lead-free wire solder for servicing.

| Part No.      | ★ | Description        | Code |
|---------------|---|--------------------|------|
| ZHNDai123250E | J | φ0.3mm 250g(1roll) | BL   |
| ZHNDai126500E | J | φ0.6mm 500g(1roll) | BK   |
| ZHNDai12801KE | J | φ1.0mm 1kg(1roll)  | BM   |



## END OF LIFE DISPOSAL



Attention: Your product is marked with this symbol. It means that used electrical and electronic products should not be mixed with general household waste. There is a separate collection system for these products.

### A. Information on Disposal for Users (private households)

#### 1. In the European Union

Attention: If you want to dispose of this equipment, please do not use the ordinary dust bin!

Used electrical and electronic equipment must be treated separately and in accordance with legislation that requires proper treatment, recovery and recycling of used electrical and electronic equipment.

Following the implementation by member states, private households within the EU states may return their used electrical and electronic equipment to designated collection facilities free of charge\*. In some countries\* your local retailer may also take back your old product free of charge if you purchase a similar new one.

\*) Please contact your local authority for further details.

If your used electrical or electronic equipment has batteries or accumulators, please dispose of these separately beforehand according to local requirements.

By disposing of this product correctly you will help ensure that the waste undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health which could otherwise arise due to inappropriate waste handling.

#### 2. In other Countries outside the EU

If you wish to discard this product, please contact your local authorities and ask for the correct method of disposal.

For Switzerland: Used electrical or electronic equipment can be returned free of charge to the dealer, even if you don't purchase a new product. Further collection facilities are listed on the homepage of [www.swico.ch](http://www.swico.ch) or [www.sens.ch](http://www.sens.ch).

### B. Information on Disposal for Business Users

#### 1. In the European Union

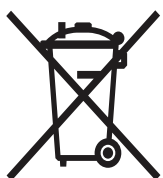
If the product is used for business purposes and you want to discard it:

Please contact your SHARP dealer who will inform you about the take-back of the product. You might be charged for the costs arising from take-back and recycling. Small products (and small amounts) might be taken back by your local collection facilities.

For Spain: Please contact the established collection system or your local authority for take-back of your used products.

#### 2. In other Countries outside the EU

If you wish to discard of this product, please contact your local authorities and ask for the correct method of disposal.



**Pb**

The battery supplied with this product contains traces of Lead.

For EU: The crossed-out wheeled bin implies that used batteries should not be put to the general household waste! There is a separate collection system for used batteries, to allow proper treatment and recycling in accordance with legislation. Please contact your local authority for details on the collection and recycling schemes.

For Switzerland: The used battery is to be returned to the selling point.

For other non-EU countries: Please contact your local authority for correct method of disposal of the used battery.

When one of the 5 Nordic countries (Sweden, Norway, Finland, Denmark or Iceland) is selected in the country setting of Auto Installation, DTV channels are 4 digits. When another country is selected, DTV channels are 3 digits.

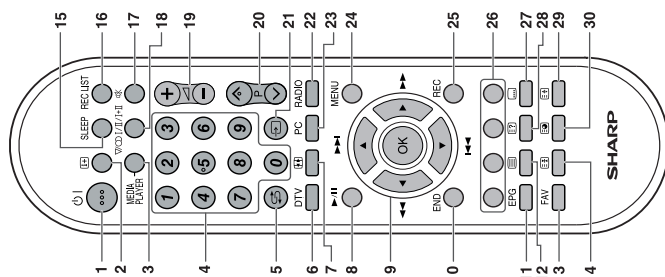
- DTV/CADTV:** To display EPG (Electronic Programme Guide) screen. (See page 11.)






**Analogue TV mode:**

| NICAM TV broadcasts selection |   |
|-------------------------------|---|
| Signal                        | Selectable items                          |
| Stereo                        | NICAM STEREO, MONO                        |
| Bilingual                     | NICAM CH A, NICAM CH B, NICAM CH AB, MONO |
| Monocaural                    | NICAM MONO, MONO                          |

| A2 TV broadcasts selection |                         |
|----------------------------|-------------------------|
| <b>Signal</b>              | <b>Selectable items</b> |
| <b>Stereo</b>              | STEREO, MONO            |
| <b>Bilingual</b>           | CH A, CH B, CH AB       |
| <b>Monoaural</b>           | MONO                    |

- \*CADTV only Lx220 series.



- 2  **Teletext**  
ATV: Select the TELETEXT mode  
(See page 12.)
- 26 **Colour (Red/Green/Yellow/Blue)**  
TELETEXT: Select a page. (See page 12.)
- 27 **Subtitle for Teletext**  
ATV: Subtitles on / off.  
DTV/CADTV: Display the subtitle selection screen. (See page 10 and 12.)
- 28  **Reveal hidden Teletext**  
(See page 12.)
- 29  **Top/Bottom/Full**  
Switch the Teletext image to Top, Bottom or Full.
- 30  **Subpage**  
(See page 12.)
- 3 **FAV**  
Shows the favourite list.
- 4  **Freeze / Hold**  
Freeze a picture (TV) or the Teletext on the screen (See page 12)
- 5 **SLEEP**  
Set the sleep timer on (in units of 10 min. up to max. 4 hr) and off.
- 6 **REC LIST**  
Shows list of recorded programs. (See page 28.)
- rol unit**

**Analogue TV mode:**

| NICAM TV broadcasts selection |   |
|-------------------------------|---|
| Signal                        | Selectable items                          |
| Stereo                        | NICAM STEREO, MONO                        |
| Bilingual                     | NICAM CH A, NICAM CH B, NICAM CH AB, MONO |
| Monocaural                    | NICAM MONO, MONO                          |

| A2 TV broadcasts selection |                         |
|----------------------------|-------------------------|
| <b>Signal</b>              | <b>Selectable items</b> |
| <b>Stereo</b>              | STEREO, MONO            |
| <b>Bilingual</b>           | CH A, CH B, CH AB       |
| <b>Monoaural</b>           | MONO                    |

Diagram illustrating the back of the TV and its connections to various external devices:

- Power Button:** Located on the bottom left of the TV's back panel.
- Menu Button:** Located on the bottom left of the TV's back panel.
- Input Source Button:** Located on the bottom left of the TV's back panel.
- Volume Buttons:** Located on the bottom left of the TV's back panel.
- Ports and Connections:**
  - HDMI 1:** Connected to a game console.
  - HDMI 2:** Connected to a Blu-ray player.
  - HDMI 3:** Connected to a PC.
  - HDMI 4:** Connected to a laptop.
  - PC Port:** Connected to a PC.
  - USB Port:** Connected to a USB drive.
  - Audio Line Out:** Connected to a speaker.

- |   |                                    |    |                                |    |                             |
|---|------------------------------------|----|--------------------------------|----|-----------------------------|
| 1 | USB terminal                       | 6  | Antenna input terminal         | 11 | HDMI 3 (HDMI/ DVI)          |
| 2 | COMPONENTS / AV terminals          | 7  | DIGITAL AUDIO OUTPUT terminal  | 12 | AUDIO input for DVI and PC. |
| 3 | HEADPHONES/jack                    | 8  | SERVICE connector (jack 3.5mm) | 13 | COMMON INTERFACE slot       |
| 4 | SCART (AV/RGB, Y/C Input) terminal | 9  | HDMI 1 (HDMI/DVI)              | 14 | AC INPUT terminal           |
| 5 | PC input                           | 10 | HDMI 2 (HDMI/DVI)              |    |                             |

## Operation Manual (Continued)

### Quick guide

#### Initial installation overview

Follow the steps below one by one when using the TV for the first time. Some steps may not be necessary depending on your TV installation and connection.

### 1 Preparation

- Connect an antenna cable to the antenna terminal (Page 8).
- If necessary, insert a CA card into the CI slot to watch scrambled broadcasts (Page 8).
- Connect the AC cord to the TV (Page 8).

### 2 Power on and run the auto installation

- Turn on the power using on the TV (Page 10).
- Run the initial auto installation (Page 9).
  - Language, country and tune type setting

### 3 Watch TV

- Congratulations! Now you can watch TV.** If necessary, adjust the antenna to attain maximum signal reception (Page 9).

### Connect external devices

- Connect external devices such as a DVD player/recorder as instructed (Pages 14 and 15).
- Connect external audio devices such as speakers/amplifier as instructed (Pages 14 and 15).

### TV Location setting

✓ TV Location setting

Home Store

Start searching channels

Product shape varies in some countries.

### Preparation

#### Inserting the batteries

Before using the TV for the first time, insert two supplied "AA" size zinc-carbon batteries. When the batteries become depleted and the remote control unit fails to operate, replace the batteries with new "AA" size batteries.

- Hold in the tab on the battery cover and pull the cover towards the direction of the arrow.
- Insert two supplied "AA" size batteries.
  - Place batteries with their terminals corresponding to the (+) and (-) indications in the battery compartment.
- Close the battery cover.

#### CAUTION

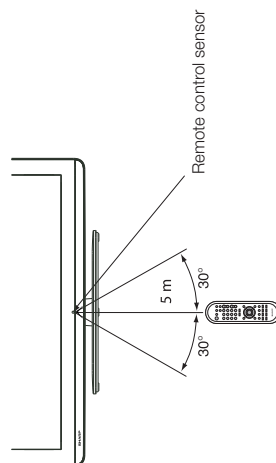
- Improper use of batteries can result in chemical leakage or explosion. Be sure to follow the instructions below.
- Do not mix batteries of different types. Different types of batteries have different characteristics.
  - Do not mix old and new batteries. Mixing old and new batteries can shorten the life of new batteries or cause chemical leakage in old batteries.
  - Remove batteries as soon as they have worn out. Chemicals that leak from batteries can cause a rash. If you find any chemical leakage, wipe thoroughly with a cloth.
  - The batteries supplied with this product may have a shorter life expectancy due to storage conditions.
  - If you will not be using the remote control unit for an extended period of time, remove the batteries from it.

#### Note on disposing batteries:

The batteries provided contain no harmful materials such as cadmium, lead or mercury. Regulations concerning used batteries stipulate that batteries may no longer be thrown out with the household rubbish. Deposit any used batteries free of charge into the designated collection containers set up at commercial businesses.

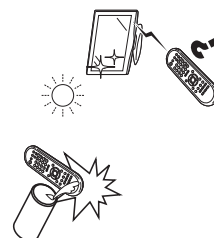
### Using the remote control unit

Use the remote control unit by pointing it towards the remote control sensor. Objects between the remote control unit and sensor may prevent proper operation.



### Cautions regarding the remote control unit

- Do not expose the remote control unit to shock. In addition, do not expose the remote control unit to liquids, and do not place in an area with high humidity.
- Do not install or place the remote control unit under direct sunlight. The heat may cause deformation of the unit.
- The remote control unit may not work properly if the remote control sensor of the TV is under direct sunlight or strong lighting. In such cases, change the angle of the lighting or the TV, or operate the remote control unit closer to the remote control sensor.



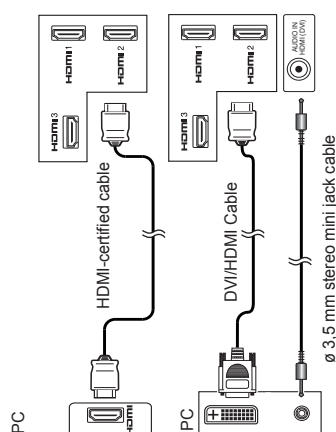
## Operation Manual (Continued)

### Connecting a PC

#### PC connection

##### HDMI (DVI) Connection

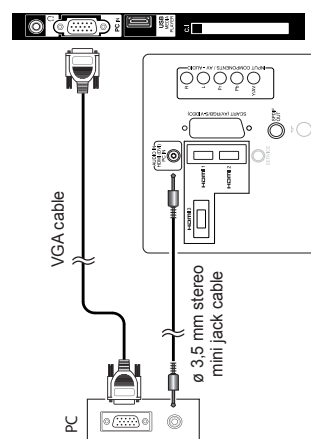
HDMI 1, 2 or 3



#### After connection

- If after connecting a PC to the TV through a HDMI cable, the audio does not run, connect a mini stereo connector of  $\phi$  3.5mm between TV and PC as indicated in the previous drawing.
- When a PC is connected to the TV with a DVI cable, it will be necessary to connect a mini stereo connector of  $\phi$  3.5mm of the TV to PC as indicated in the previous drawing.

#### Analogue Connection



### Connecting external devices

#### Before connecting ...

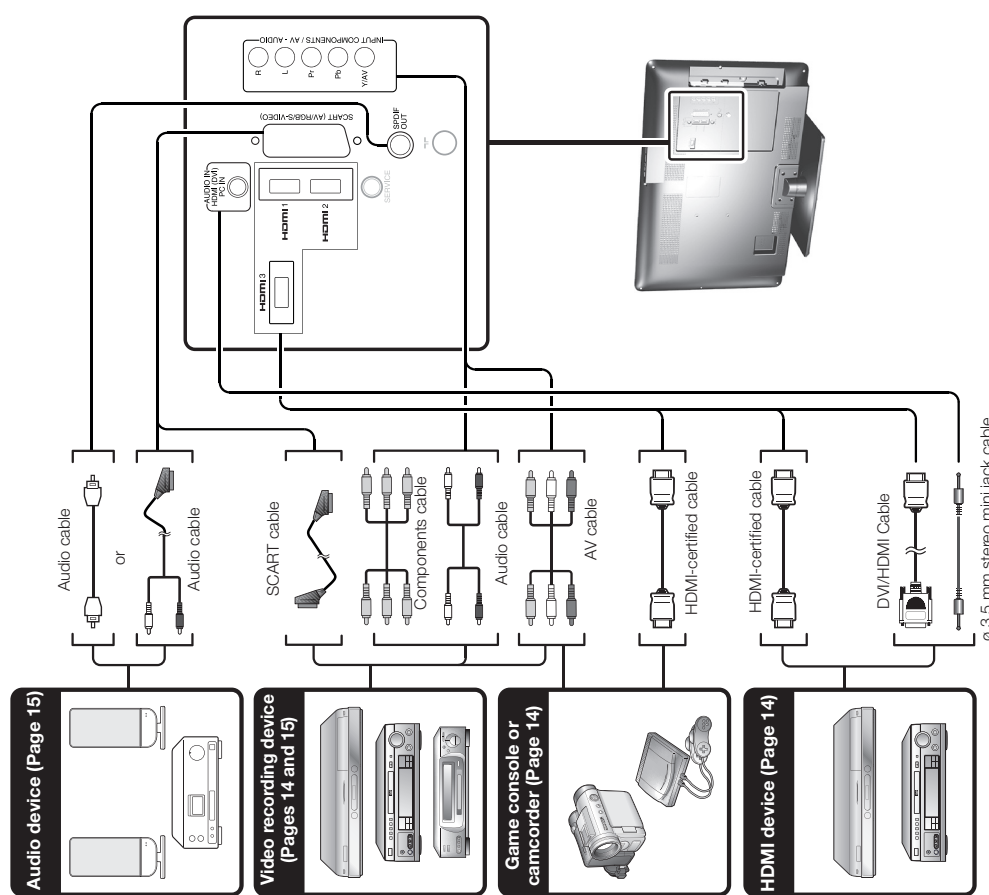
- Be sure to turn off the TV and any devices before making any connections.
- Firmly connect a cable to a terminal or terminals.
- Carefully read the operation manual of each external device for possible connection types. This also helps you get the best possible audiovisual quality to maximise the potential of the TV and the connected device.

#### Introduction to connections

The TV is equipped with the terminals as shown below. Find the cable corresponding the TV's terminal and connect the device.

#### NOTE

- The cables illustrated in pages 13, 14 and 15 are commercially available items.

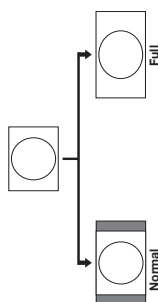


#### Selecting the picture size

You can select the picture size.

- 1 Press **MENU** on the remote control.
- 2 Press **▼** key to select "**Aspect ratio**".
- 3 Press **►** key to select the desired item.

#### Example



| Item              |  |
|-------------------|--|
| <b>Normal 4:3</b> | Keeps the original aspect ratio in a full screen display       |
| <b>Full</b>       | An image fully fills the screen                                |
| <b>Dot by Dot</b> | Displays an image with the same number of pixels on the screen |

#### NOTE

- You can also select an item by pressing **4** on the remote control unit.
- Connect the PC before making adjustments.
- Selectable picture size may vary with input signal type.
- The "**Aspect ratio**" adjustment is only available for analogue signals through the "PC IN" terminal.

## Other useful features

### Setting when using external devices

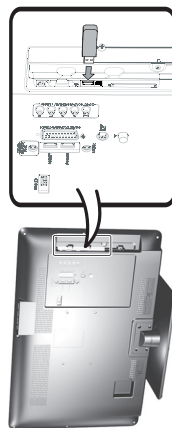
#### Input source settings



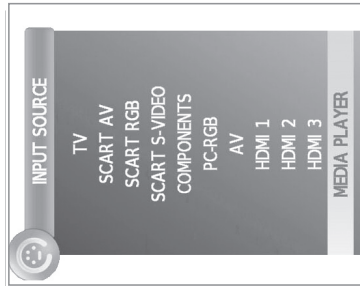
- For selecting the input type of external equipment.
- If no (colour) image is displayed, try changing to another signal type.
  - Check the operations manual of the external equipment for the signal type.

### Connecting a USB device (Media Player)

Connect an USB device to the TV as shown below.



- Depending on the USB device, the TV may not be able to recognise the contained data.
- Use only alphanumeric characters for naming files.
- File names over 80 characters (may vary depending on character set) may not be displayed.
- Do not disconnect a USB device or memory card from the TV while transferring files, using the slide show function, when a screen is switching to another or before you exit "MEDIA PLAYER" from the "INPUT SOURCE" menu.
- Compatibility with USB hard disc connection.
- Do not connect and disconnect a USB device from the TV repeatedly.



#### MEDIA PLAYER function

After selecting Media Player, the TV loads USB device files, and shows the following screen:



- 1 Pressing **◀/▶** buttons you can change between different modes: **PHOTO MUSIC MOVIE or TEXT**. Press **OK** to select the option you want to reproduce.
- 2 Press **▲/▼/◀/▶** to select the folder where you want to search the files and then press **OK**.

#### PHOTO mode

You can reproduce photos with JPEG (\*.JPE, \*.JPG), BMP and PNG format on your TV.  
Several kinds of reproduction are possible.

- 1 Select **PHOTO** mode and press **OK**.
- 2 Select the file you want to display on full screen with **▲/▼/◀/▶** buttons and press **OK** to start the viewing.

## Appendix

### Troubleshooting

| Problem   | Possible Solution  |
|---|--|
| • No power.   | <ul style="list-style-type: none"><li>• Check if you pressed <b>⏻</b> on the remote control unit.</li><li>• Is the indicator on the TV lights up red, press <b>⏻</b>!</li><li>• Is the AC cord disconnected?</li><li>• Check if you pressed <b>⏻</b> on the TV.</li></ul>  |
| • The TV cannot be operated.  | <ul style="list-style-type: none"><li>• External influences such as lightning, static electricity, etc., may cause improper operation. In this case, operate the TV after first turning off the power, or unplugging the AC cord and re-plugging it in after one or two minutes.</li></ul>   |
| • Remote control unit does not operate.                                 | <ul style="list-style-type: none"><li>• Are batteries inserted with polarity (+, -) aligned?</li><li>• Are batteries worn out? (Replace with new batteries.)</li><li>• Are you using it under strong or fluorescent lighting?</li><li>• Is a fluorescent light illuminating to the remote control sensor?</li></ul>  |
| • Picture is cut off.   | <ul style="list-style-type: none"><li>• Is the image position correct?</li><li>• Are screen mode adjustments (Aspect ratio) such as picture size made correctly? (Page 23.)</li></ul>  |
| • Strange colour, light colour, or dark colour, or colour misalignment. | <ul style="list-style-type: none"><li>• Adjust the picture tone.</li><li>• Is the room too bright? The picture may look dark in a room that is too bright.</li><li>• Check the "PICTURE" setting (Page 19).</li></ul>  |
| • Power is suddenly turned off.   | <ul style="list-style-type: none"><li>• The TV's internal temperature has increased. Remove any objects blocking the vent or clean.</li><li>• Is the "Sleep Timer" set? Select "Off" from the "TIME" menu (Page 20).</li><li>• Is "No Signal Off" or "No operation Off" activated?</li></ul>   |
| • No picture.   | <ul style="list-style-type: none"><li>• Are connections to external equipment correct? (Pages 13, 14 and 15)</li><li>• Is the input signal type selected correctly after connection? (Page 10)</li><li>• Is the correct input source selected? (Page 10)</li><li>• Is the picture adjustment correct? (Pages 19)</li><li>• Is the antenna connected properly? (Page 8)</li></ul> |
| • No sound.   | <ul style="list-style-type: none"><li>• Is the volume too low?</li><li>• Make sure that headphones are not connected.</li><li>• Check if you pressed <b>⏻</b> on the remote control unit.</li></ul>  |
| • The TV sometimes makes a cracking sound.                              | <ul style="list-style-type: none"><li>• This is not a malfunction. This happens when the cabinet slightly expands and contracts according to changes in temperature. This does not affect the TV's performance.</li></ul>  |

#### Cautions regarding use in high and low temperature environments

- When the TV is used in a low temperature space (e.g. room, office), the picture may leave trails or appear slightly delayed. This is not a malfunction, and the TV will recover when the temperature returns to normal.
- Do not leave the TV in a hot or cold location. Also, do not leave the TV in a location exposed to direct sunlight or near a heater, as this may cause the cabinet to deform and the LCD panel to malfunction.  
Storage temperature: -20 °C to +60 °C.

#### Information on the software license for this product

##### Software composition

The software included in this product is comprised of various software components whose individual copyrights are held by SHARP or by third parties.

##### Software developed by SHARP and/or third part

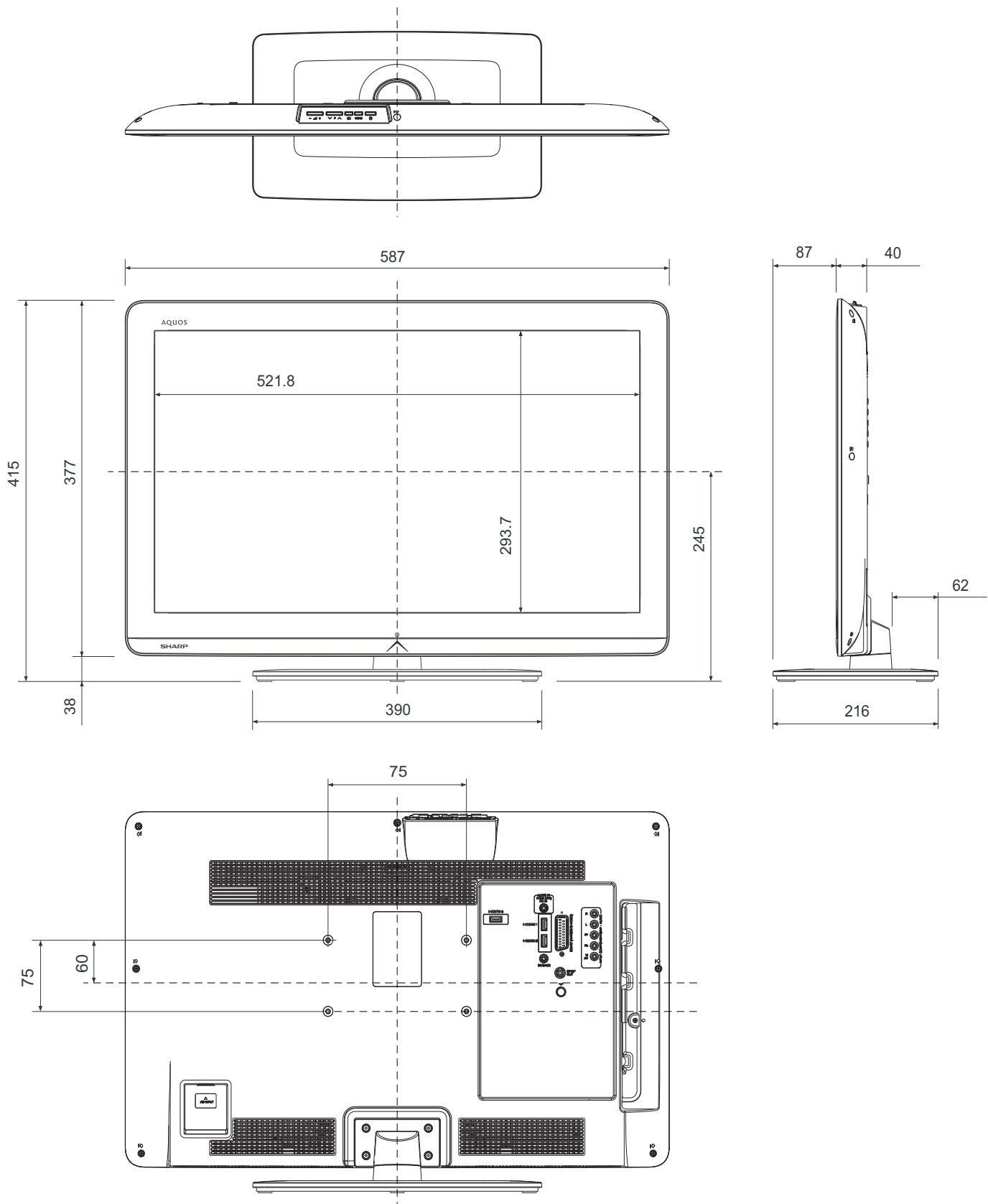
The copyrights for the software components and various relevant documents included with this product that were developed or written by SHARP are owned by SHARP and are protected by the Copyright Act, international treaties, and other relevant laws. This product also makes use of freely distributed software and software components whose copyrights are held by third parties.

#### Fixing the TV on a wall

- **This TV should be fixed on a wall only with the wall fix bracket available from SHARP (Page 5). The use of other wall fix brackets may result in an unstable installation and may cause serious injuries.**
- **Fixing the LCD colour TV requires special skills and should only be performed by qualified service personnel. Customers should not attempt to do the work themselves. SHARP bears no responsibility for improper fixing or fixing that results in accident or injury.**
- You can ask qualified service personnel about using an optional bracket to fix the TV on a wall.
- To use this TV fixed on a wall, first remove the adhesive tape at the two locations on the rear of the TV, and then use the screws supplied with the wall fix bracket to secure the bracket to the rear of the TV.
- When you fix the TV on a wall, you should attach the supporting post.

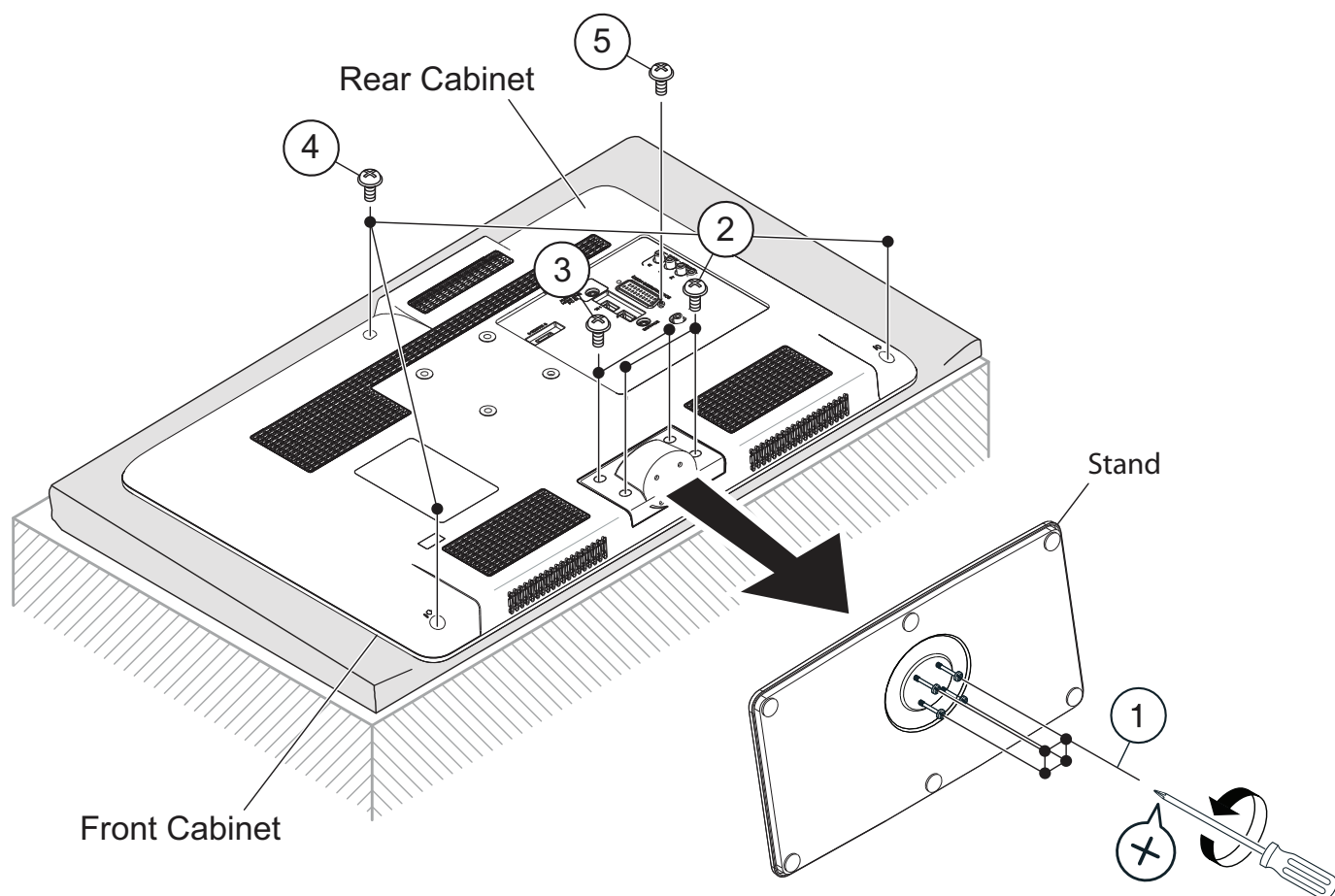


## DIMENSIONS



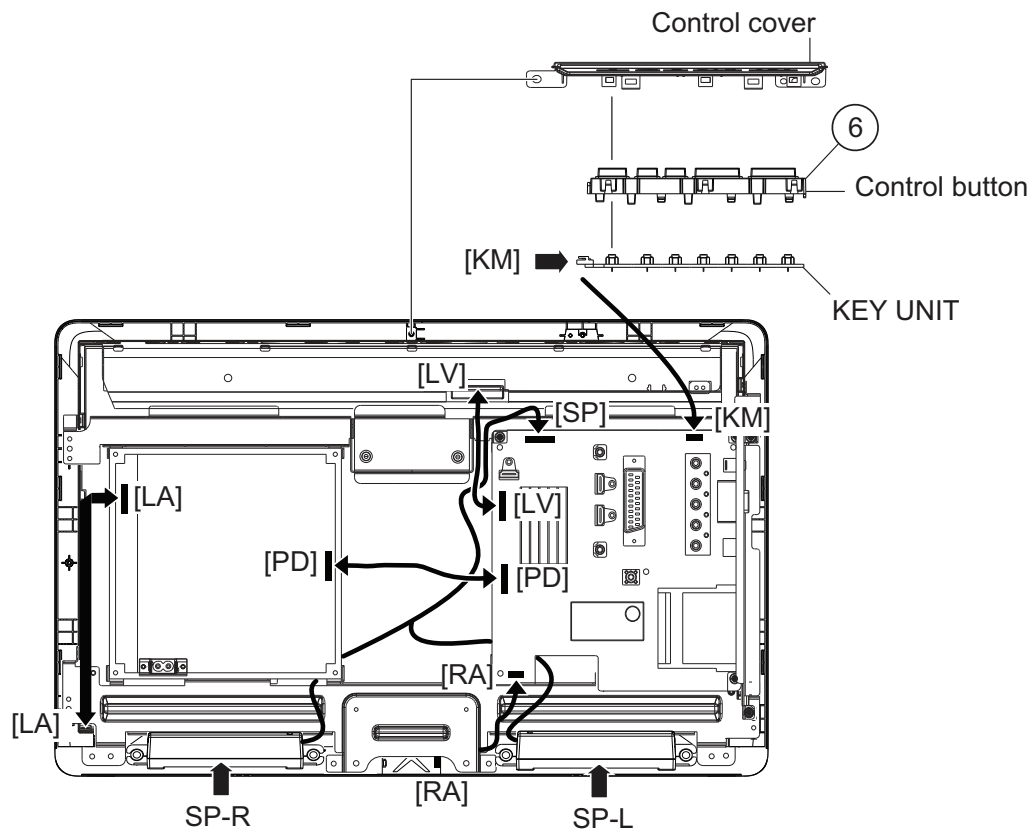
## REMOVING OF MAJOR PARTS

1. To slacken the 4 lock screws ① and detach the Stand.
2. Remove the 2 lock screws ②, 2 lock screws ③, 3 lock screws ④, 1 lock screw ⑤ and detach the Rear Cabinet.



### Removing of major parts (Continued)

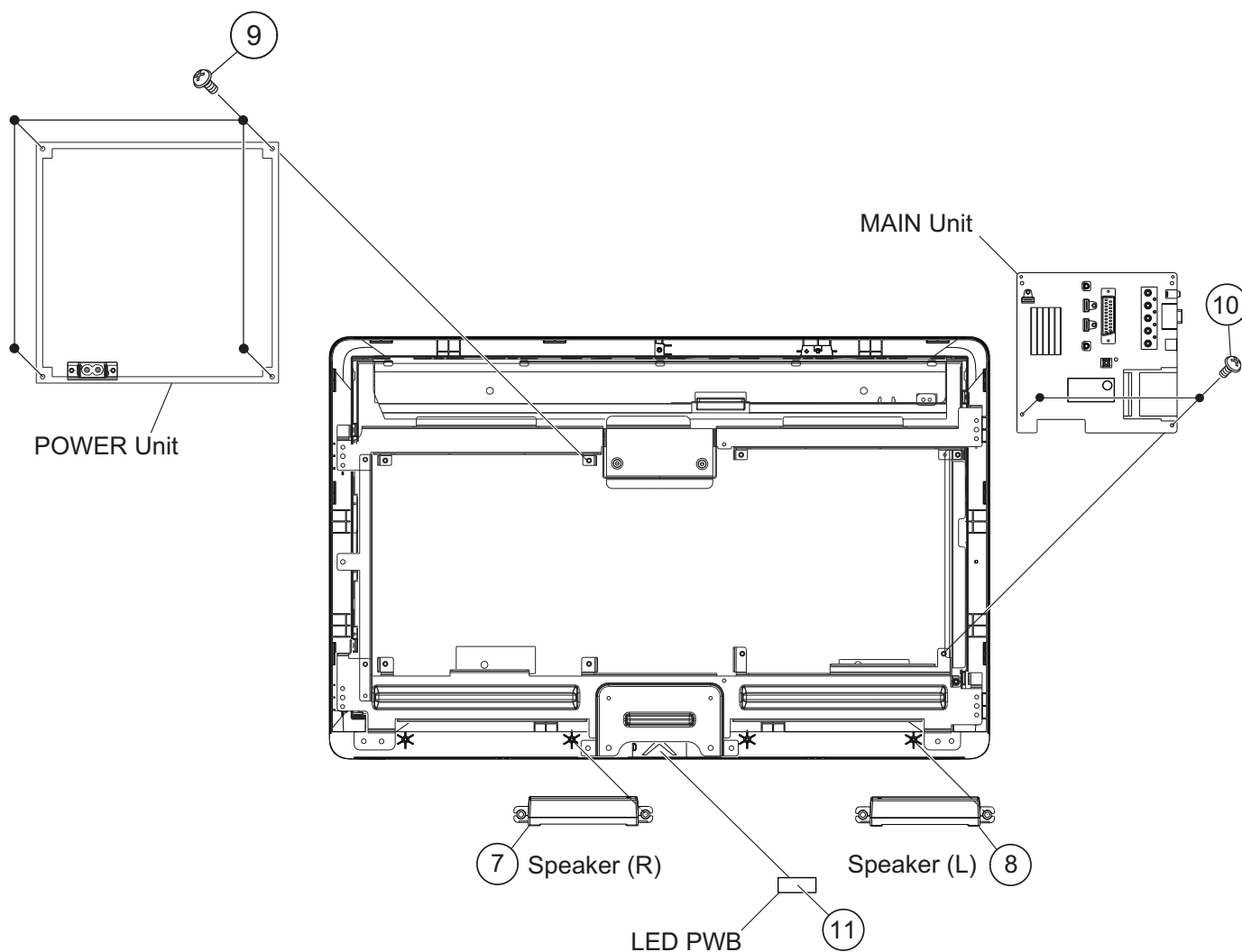
3. Disconnect all the connectors from all the PWBs.
4. Remove the Key Unit Ass'y ⑥.





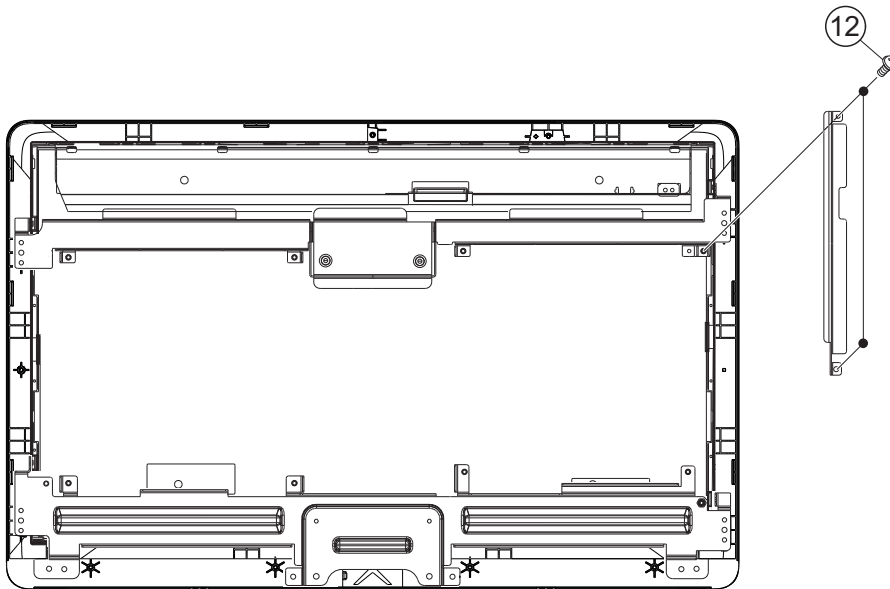
## Removing of major parts (Continued)

5. Remove the speaker (R) ⑦ , (L) ⑧ .
6. Remove the 4 lock screws ⑨ , and detach the POWER Unit.
7. Remove the 2 lock screws ⑩, and detach the MAIN Unit.
8. Remove the LED PWB ⑪.



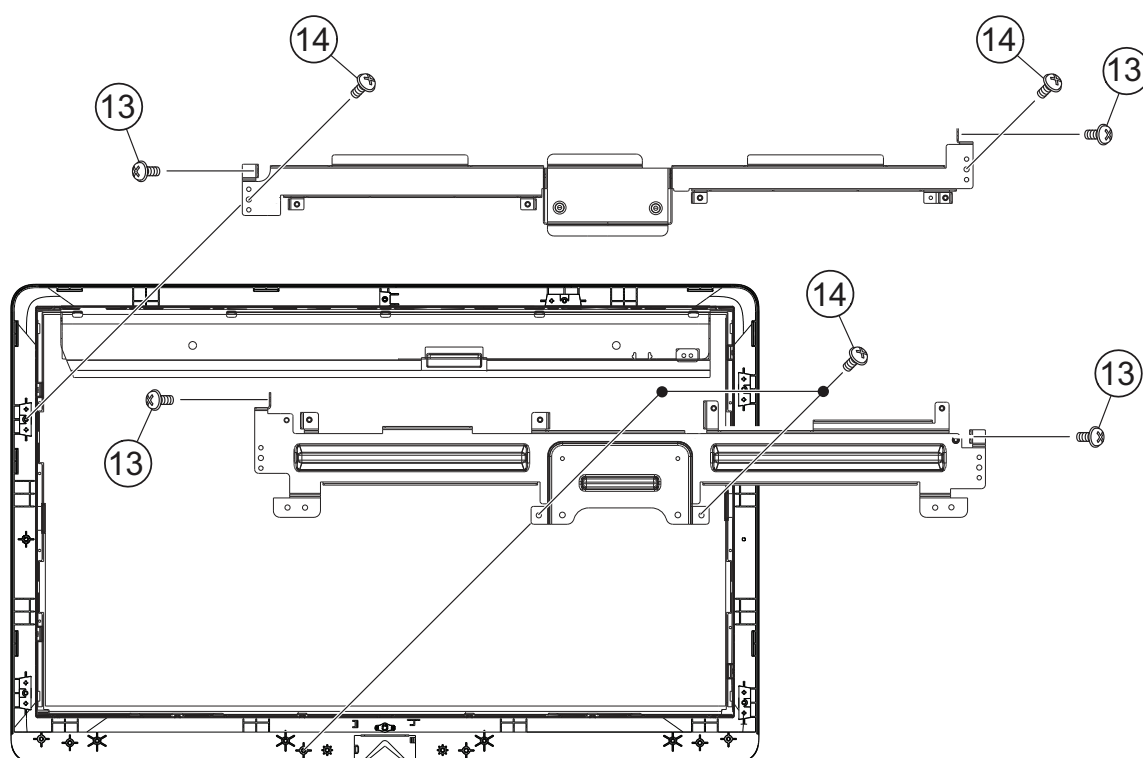
## Removing of major parts (Continued)

9. Remove the 2 lock screws ⑫ and detach the stand angle.



## Removing of major parts (Continued)

10. Remove the 4 lock screws ⑬.
12. Remove the 4 lock screws ⑭. and detach the angles.



## SERVICE ADJUSTMENTS

### 1. Adjustment method after PWB and/or IC replacement due to repair

The unit is set to the optimum performance at the time of shipment from the factory.

If any value should become improper or any adjustment is necessary due to the part replacement, make an adjustment according to the following procedure.

#### 1.1. Procure the following units in order to replace the main unit:

MAIN UNIT **DUNTKF639FMxx**

NOTE: [Caution when replacing ICs in the main unit (IC1901, IC1902, IC1902, IC1501, IC1006 and IC1007)]

Before replacing the relevant part, procure the following parts in which the data have been rewritten.

| Ref.        | Description        | Parts code IC + data | Description new IC code for service            |
|-------------|--------------------|----------------------|--|
| IC1901      | HDMI EDID 1        | RH-IXD236WJZZY       | RH-IXD080WJZZY AND DATA LC32LE2x0E_HDMI_1_EDID |
| IC1902      | HDMI EDID 2        | RH-IXD237WJZZY       | RH-IXD080WJZZY AND DATA LC32LE2x0E_HDMI_2_EDID |
| IC1903      | HDMI EDID 3        | RH-IXD238WJZZY       | RH-IXD080WJZZY AND DATA LC32LE2x0E_HDMI_3_EDID |
| IC1501      | PC EDID            | RH-IXD239WJZZY       | RH-IXD080WJZZY AND DATA LC32LE2x0E_PC_EDID     |
| IC1006      | HDCP USER SETTINGS | RH-IXD261WJZZY       | RH-IXC986WJZZY AND DATA LC32LE2x0E_HDCP_KEY    |
| IC1007<br>* | FLASH MEMORY       | RH-IXD274WJZZY       | RH-IXD012WJZZY and 24LE210_v1.12_PANEL_CMI     |

\* For LE220 models it is not possible replace IC1007. Replace the full Main Unit.

### 2. Entering and exiting the adjustment process mode. Standard method.

#### 1. By key-unit.


1. Unplug the AC power cord.
2. Press and hold "V-" and "→" keys, simultaneously, and then plug the AC power cord.
3. "K" appears on the screen.
4. Press and hold "V-" and "P-" keys, simultaneously.
5. "SHARP FACTORY MENU" appears (see Figure 1).
6. Unplug the AC power cord to exit of adjustments process.

#### 2. By own R/C

1. Turn on the TV set.
2. Press "→", "2", "5", "8", "0" (the time is limited to 5 sec. approx., for enter this code).
3. "SHARP FACTORY MENU" appears (see Figure 1).
4. Press "OK" on lines 5 ~ 12 to go to submenu.
5. Press "MENU" to return to main menu.
6. Press "END" to exit of adjustments mode.

### 3. Remote control key operation and description of display in adjustment process mode.

#### 1. key operation

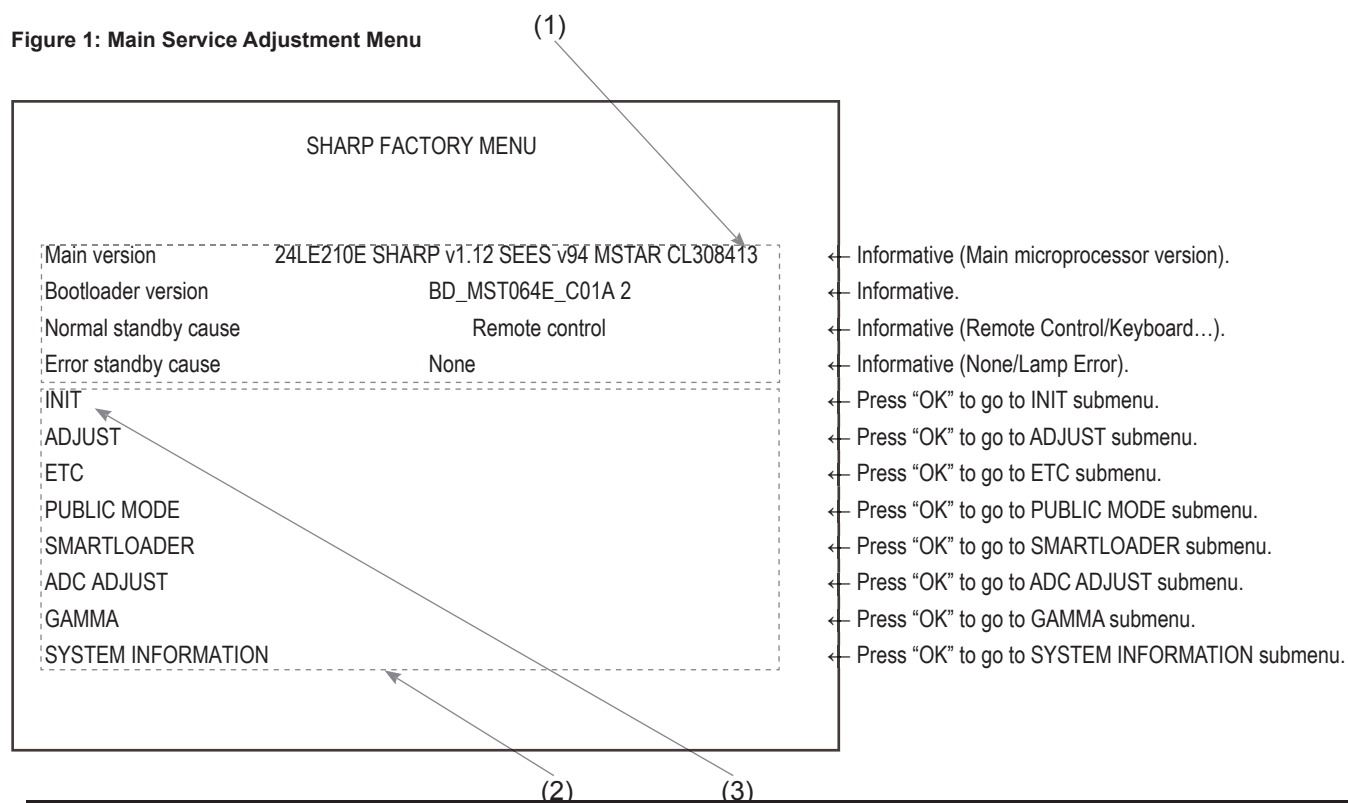
| Remote control key | Keyboard unit   | Function  |
|--------------------|---|---|
| Cursor (▼/▲)       | P (✓/∧)   | Moving an item (line) by one (up/down) on "Sharp Factory Menu" or submenus.           |
| OK                 |  | Selecting a submenu on lines 5 to 12 of "Sharp Factory Menu" or executing a function. |
| Cursor (◀/▶)       | V (+/-)   | Changing a selected item setting value.   |
| MENU               | MENU  | Return to "Sharp Factory Menu" from a submenu.  |

The required input mode should be switched previously to enter the Service Mode.

**CAUTION:** Use due care in handling the information described here lest the users should know how to enter the adjustment process mode. If the settings are tampered with in this mode, unrecoverable system damage may result.

### 4. Description of display

Figure 1: Main Service Adjustment Menu



| No. | Description                   | Display specification  |
|-----|-------------------------------|--|
| (1) | Service Information           | Current Software version and others.                         |
| (2) | Item name                     | Submenus to be checked or adjusted (by pressing "OK" button) |
| (3) | Factory init and Inch setting | Are shown on INIT submenu                                    |

## 5. Adjustment process mode menu

| Page  | Line                 | Sub Page | Item                 | Description                                     | Remarks (adjustment details, etc.)              |
|-------|----------------------|----------|----------------------|---|---|
| 01/17 | [SHARP FACTORY MENU] |          |                      |   |   |
|       | 1                    |          | Main Version         | 24LE210E SHARP v1.12 SEES<br>v94 MSTAR CL308413 | Informative only (Main microprocessor version)  |
|       | 2                    |          | Bootloader Version   | BD_MST064E_C01A 2                               | Informative only                                |
|       | 3                    |          | Normal Standby Cause | No signal                                       | Informative only                                |
|       | 4                    |          | Error Standby Cause  | None  | Informative only                                |
|       | 5                    |          | INIT                 | Factory Init Submenu                            | Press "OK" to enter to Factory Init Submenu     |
|       | 02/17                |          | Factory Init         | EURO  | Informative (EURO/RUSSIA/SWEDEN/UK/EAST EUROPE) |
|       |                      |          | Inch Setting         | CMO_M236H3-LA2                                  | Panel type                                      |
|       |                      |          | Center Acutime       | 0 H 0 M   | Backlight ON accumulated Time                   |
|       |                      |          | RESET                |   | Press "◀" or "▶" to reset Center Acutime        |
|       | 6                    |          | ADJUST               | QMAP ADJUST Submenu                             | Press "OK" to enter to QMAP ADJUST Submenu      |
|       | 03/17                |          | INPUT SOURCE (1/6)   | RF_PAL_BGHI                                     |   |
|       |                      |          | AFEC                 |   | Only for Engineering purpose (Please don't use) |
|       |                      |          | Comb                 |   | Only for Engineering purpose (Please don't use) |
|       |                      |          | SECAM                |   | Only for Engineering purpose (Please don't use) |
|       |                      |          | SCinit               |   | Only for Engineering purpose (Please don't use) |
|       |                      |          | CSC                  | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | CSC_Dither           | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | YCdelay              | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | PreFilter            | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | HSD_Y                | ALL PASS1X                                      | Only for Engineering purpose (Please don't use) |
|       |                      |          | HSD_C                | ALL PASS1X                                      | Only for Engineering purpose (Please don't use) |
|       |                      |          | VSD                  | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | CTI                  | CTI_1   | Only for Engineering purpose (Please don't use) |
|       | 04/17                |          | INPUT SOURCE (2/6)   | DTV/ RF/Multimedia ...                          |   |
|       |                      |          | MemFormat            | 422MF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | 444To422             | ON  | Only for Engineering purpose (Please don't use) |
|       |                      |          | PreSNR               | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | DNR                  | NR_OFF  | Only for Engineering purpose (Please don't use) |
|       |                      |          | DNR_Motion           | MR_NR   | Only for Engineering purpose (Please don't use) |
|       |                      |          | DNR_Y                | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | DNR_MED              | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | DNR_C                | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | PNR                  | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | PNR_Y                | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | PNR_C                | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | PostCCS              | OFF   | Only for Engineering purpose (Please don't use) |
|       | 05/17                |          | INPUT SOURCE (3/6)   | DTV/ RF/Multimedia ...                          |   |
|       |                      |          | PostCCS_Smooth       | PCS_6   | Only for Engineering purpose (Please don't use) |
|       |                      |          | 420CUP               | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | MADi                 | P_MODE_MOT10                                    | Only for Engineering purpose (Please don't use) |
|       |                      |          | MADi_Motion          | MOT_PMODE                                       | Only for Engineering purpose (Please don't use) |
|       |                      |          | MADi_ADP3x3          | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | MADi_MORPHO          | OFF   | Only for Engineering purpose (Please don't use) |
|       |                      |          | MADi_DFK             | OFF   | Only for Engineering purpose (Please don't use) |

| Page | Line                 | Sub Page | Item               | Description                                 | Remarks (adjustment details, etc.)              |
|------|----------------------|----------|--------------------|---|---|
| 1/17 | [SHARP FACTORY MENU] |          |                    |   |   |
|      | 6                    |          | ADJUST (continued) | QMAP ADJUST Submenu                         | Press "OK" to enter to QMAP ADJUST Submenu      |
|      | 05/17                |          | INPUT SOURCE (3/6) | DTV/ RF/Multimedia ...                      |   |
|      |                      |          | MADi_SST           | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | MADi_Force         | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | EODi               | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | Film               | SD_2  | Only for Engineering purpose (Please don't use) |
|      |                      |          | Film32             | OFF   | Only for Engineering purpose (Please don't use) |
|      | 06/17                |          | INPUT SOURCE (4/6) | DTV/ RF/Multimedia ...                      |   |
|      |                      |          | Film22             | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | DIPF               | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | VCLPF              | ON  | Only for Engineering purpose (Please don't use) |
|      |                      |          | Spike_NR           | S2  | Only for Engineering purpose (Please don't use) |
|      |                      |          | SPF                | ON  | Only for Engineering purpose (Please don't use) |
|      |                      |          | SPF_DBK            | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | SPF_SNR            | E2S1  | Only for Engineering purpose (Please don't use) |
|      |                      |          | SPF_DBK_SNR_MR     | ON  | Only for Engineering purpose (Please don't use) |
|      |                      |          | SPF_MR_LPF         | LPF3x3                                      | Only for Engineering purpose (Please don't use) |
|      |                      |          | SPF_SMR            | S2  | Only for Engineering purpose (Please don't use) |
|      |                      |          | SPF_NMR_MR         | ON  | Only for Engineering purpose (Please don't use) |
|      |                      |          | DMS                | S2  | Only for Engineering purpose (Please don't use) |
|      | 07/17                |          | INPUT SOURCE (5/6) | DTV/ RF/Multimedia ...                      |   |
|      |                      |          | VSP_Y              | SRAM_1_4Tap                                 | Only for Engineering purpose (Please don't use) |
|      |                      |          | VSP_C              | ROM_121                                     | Only for Engineering purpose (Please don't use) |
|      |                      |          | VSP_CoRing         | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | VSP_DeRing         | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | VSP_Dither         | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | VSP_PreVBound      | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | HSP_Y              | SRAM_1_4Tap                                 | Only for Engineering purpose (Please don't use) |
|      |                      |          | HSP_C              | ROM_121                                     | Only for Engineering purpose (Please don't use) |
|      |                      |          | HSP_CoRing         | Y_Coring_1                                  | Only for Engineering purpose (Please don't use) |
|      |                      |          | HSP_DeRing         | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | HSP_Dither         | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | HnonLinear         | OFF   | Only for Engineering purpose (Please don't use) |
|      | 08/17                |          | INPUT SOURCE (6/6) | DTV/ RF/Multimedia ...                      |   |
|      |                      |          | SRAM1              | InvSinc4Tc4p4Fc85<br>Fstop134Apass01Astop50 | Only for Engineering purpose (Please don't use) |
|      |                      |          | SRAM2              | InvSinc6Tc4p4Fc94<br>Fstop134Apass01Astop60 | Only for Engineering purpose (Please don't use) |
|      |                      |          | 422To444           | ON  | Only for Engineering purpose (Please don't use) |
|      |                      |          | Peaking            | 1080p                                       | Only for Engineering purpose (Please don't use) |
|      |                      |          | SwDriver           | ALL   | Only for Engineering purpose (Please don't use) |
|      |                      |          | VIP_CSC            | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | VIP_CSC_Dither     | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | Color              | Multimedia_photo_HD                         | Only for Engineering purpose (Please don't use) |
|      |                      |          | 3x3                | OFF   | Only for Engineering purpose (Please don't use) |
|      |                      |          | Display            | ALL   | Only for Engineering purpose (Please don't use) |
|      |                      |          | Post_CON_BRI       | OFF   | Only for Engineering purpose (Please don't use) |

| Page  | Line                 | Sub Page | Item                         | Description   | Remarks (adjustment details, etc.)  |
|-------|----------------------|----------|------------------------------|---|---|
| 01/17 | [SHARP FACTORY MENU] |          |                              |   |   |
|       | 7                    |          | ETC                          | EEP, Autoinstallation, Option, Country, L Error...  | Press "OK" to enter to ETC Submenu  |
|       |                      | 09/17    | EEP Clear                    |   | Press "▶" to Clear NVM data   |
|       |                      |          | EEP Clear B                  |   | Press "▶" to Clear NVM data (except adjustments area).  |
|       |                      |          | Standby cause reset          | "OK" will be displayed  | Press "▶" to Reset of STANDBY CAUSE.  |
|       |                      |          | Autoinstallation SW          | Off   | On: Pending to execute on next power on. Off: Not required.   |
|       |                      |          | Pattern                      | 0   | Selection of internal pattern from 0 up to 6...   |
|       |                      |          | L Error Reset                | 0   | Press "▶" to LAMP ERR RESET. Initialization of L_ERR.   |
|       |                      |          | L Error Check                | On  | L_ERR detection. ON: activated. OFF: deactivated.   |
|       |                      |          | I2C OFF                      | Off   | I2C BUS status. On: free BUS. Off: Normal.  |
|       |                      |          | Sharp protocol               | On  | Remote Control Protocol. On: SHARP Off: MSTAR.  |
|       | 8                    |          | PUBLIC MODE (1/2)            | PUBLIC MODE Submenu   | Press "OK" to enter to PUBLIC MODE Submenu  |
|       |                      | 10/17    | Power On fixed               | Variable  | Press "◀" or "▶" to change Variable/Fixed.  |
|       |                      |          | Maximum volume               | 60  | Press "◀" or "▶" to change 0/60.  |
|       |                      |          | Volume fixed                 | Variable  | Press "◀" or "▶" to change Variable/Fixed.  |
|       |                      |          | Volume fixed Level           | 20  | Press "◀" or "▶" to change 0/60.  |
|       |                      |          | RC button                    | Respond   | Press "◀" or "▶" to change Respond/No respond.  |
|       |                      |          | Panel button                 | Respond   | Press "◀" or "▶" to change Respond/No respond.  |
|       |                      |          | Menu button                  | Respond   | Press "◀" or "▶" to change Respond/No respond.  |
|       |                      |          | On screen display            | On  | Press "◀" or "▶" to change On/Off.  |
|       |                      |          | Input mode start             | Normal  | Press "◀" or "▶" to change Normal/TV/SCART/...  |
|       |                      |          | Input mode fixed             | Variable  | Press "◀" or "▶" to change Variable/Fixed.  |
|       |                      |          | Input TV mode program number | Normal  | Press "◀" or "▶" to change Normal → 1 → 2 ...999 → Normal).   |
|       |                      |          | RC path through              | Off   | Press "◀" or "▶" to change On/Off (required external module)  |
|       |                      |          | PUBLIC MODE (2/2)            | PUBLIC MODE Submenu   |   |
|       |                      | 11/17    | Hotel mode                   | Off   | Press "◀" or "▶" to change On/Off.  |
|       |                      |          | Reset                        | "OK" will be displayed  | Press "◀" or "▶" to return to factory settings.   |
|       |                      |          | Execute                      | "OK" will be displayed  | Press "◀" or "▶" to confirm.  |
|       | 9                    |          | SMART LOADER                 | SMART LOADER Submenu  | Press "OK" to enter to SMART LOADER Submenu   |
|       |                      | 12/17    | Save settings to USB         | ("OK" or "NO USB drive available, please check and/or insert USB dri..." will be displayed).                | Press "◀" or "▶" to Save.<br>("OK" or "NO USB drive available, please check and/or insert USB dri..." will be displayed). |
|       |                      |          | Load settings from USB       | ("OK, reboot TV set" or "NO USB drive available, please check and/or insert USB dri..." will be displayed). | Press "◀" or "▶" to Load.   |
|       | 10                   |          | ADC ADJUST                   | ADC ADJUST Submenu  | Press "OK" to enter to ADC ADJUST Submenu   |
|       |                      | 13/17    | MODE                         | YPbPr(SD)   | Press "◀" or "▶" to change RGB/YPbPr(SD)/ YPbPr(HD)/ PC-RGB.  |
|       |                      |          | ADJUST                       | External signal   | Press "◀" or "▶" to change Internal signal/External signal. External: factory. Internal: service                          |
|       |                      |          | R-GAIN                       | 80  | Press "◀" or "▶" for manual adjustment.   |
|       |                      |          | G-GAIN                       | 70  | Press "◀" or "▶" for manual adjustment.   |



| Page  | Line                 | Sub Page | Item                   | Description                          | Remarks (adjustment details, etc.)  |
|-------|----------------------|----------|------------------------|--------------------------------------|---|
| 01/17 | [SHARP FACTORY MENU] |          |                        |                                      |   |
|       |                      |          | ADC ADJUST (continued) | ADC ADJUST Submenu                   | Press "OK" to enter to ADC ADJUST Submenu   |
| 10    | 13/17                |          | B-GAIN                 | 80                                   | Press "◀" or "▶" for manual adjustment.   |
|       |                      |          | R-OFFSET               | 128                                  | Press "◀" or "▶" for manual adjustment.   |
|       |                      |          | G-OFFSET               | 128                                  | Press "◀" or "▶" for manual adjustment.   |
|       |                      |          | B-OFFSET               | 128                                  | Press "◀" or "▶" for manual adjustment.   |
|       |                      |          | AUTO ADC               | "SUCCESS" or "Fail will be displayed | Press "◀" or "▶" for automatic adjustment in each mode.                                     |
| 11    |                      |          | GAMMA (1/3)            | GAMMA Submenu                        | Press "OK" to enter to GAMMA Submenu  |
|       | 14/17                |          | MGAMMA IN1             | 40                                   | W/B adjustment, gradation 1 input setting.  |
|       |                      |          | MGAMMA IN2             | 80                                   | W/B adjustment, gradation 2 input setting.  |
|       |                      |          | MGAMMA IN3             | 120                                  | W/B adjustment, gradation 3 input setting.  |
|       |                      |          | MGAMMA IN4             | 160                                  | W/B adjustment, gradation 4 input setting.  |
|       |                      |          | MGAMMA IN5             | 200                                  | W/B adjustment, gradation 5 input setting.  |
|       |                      |          | MGAMMA IN6             | 240                                  | W/B adjustment, gradation 6 input setting.  |
|       |                      |          | MGAMMA WRITE           | "SUCCESS" will be displayed          | Press "◀" or "▶" for EEP writing of adjustment values.                                      |
|       |                      |          | MGAMMA RESET           | "SUCCESS" will be displayed          | Press "◀" or "▶" for Initialization of adjustment values.                                   |
|       |                      |          | GAMMA (2/3)            | GAMMA Submenu                        |   |
|       | 15/17                |          | MGAMMA R1              | 132                                  | W/B adjustment, gradation 1R adjustment value.  |
|       |                      |          | MGAMMA G1              | 118                                  | W/B adjustment, gradation 1G adjustment value.  |
|       |                      |          | MGAMMA B1              | 146                                  | W/B adjustment, gradation 1B adjustment value.  |
|       |                      |          | MGAMMA R2              | 276                                  | W/B adjustment, gradation 2R adjustment value.  |
|       |                      |          | MGAMMA G2              | 255                                  | W/B adjustment, gradation 2G adjustment value.  |
|       |                      |          | MGAMMA B2              | 308                                  | W/B adjustment, gradation 2B adjustment value.  |
|       |                      |          | MGAMMA R3              | 418                                  | W/B adjustment, gradation 3R adjustment value.  |
|       |                      |          | MGAMMA G3              | 385                                  | W/B adjustment, gradation 3G adjustment value.  |
|       |                      |          | MGAMMA B3              | 474                                  | W/B adjustment, gradation 3R adjustment value.  |
|       |                      |          | MGAMMA WRITE           | "SUCCESS" will be displayed          | Press "◀" or "▶" for EEP writing of adjustment values.                                      |
|       |                      |          | GAMMA (3/3)            | W/B ADJUST Submenu                   |   |
|       | 16/17                |          | MGAMMA R4              | 559                                  | W/B adjustment, gradation 4R adjustment value.  |
|       |                      |          | MGAMMA G4              | 520                                  | W/B adjustment, gradation 4G adjustment value.  |
|       |                      |          | MGAMMA B4              | 643                                  | W/B adjustment, gradation 4B adjustment value.  |
|       |                      |          | MGAMMA R5              | 701                                  | W/B adjustment, gradation 5R adjustment value.  |
|       |                      |          | MGAMMA G5              | 655                                  | W/B adjustment, gradation 5G adjustment value.  |
|       |                      |          | MGAMMA B5              | 807                                  | W/B adjustment, gradation 5B adjustment value.  |
|       |                      |          | MGAMMA R6              | 845                                  | W/B adjustment, gradation 6R adjustment value.  |
|       |                      |          | MGAMMA G6              | 793                                  | W/B adjustment, gradation 6G adjustment value.  |
|       |                      |          | MGAMMA B6              | 998                                  | W/B adjustment, gradation 6R adjustment value.  |
|       |                      |          | MGAMMA WRITE           | "SUCCESS" will be displayed          | Press "◀" or "▶" for EEP writing of adjustment values.                                      |
| 12    |                      |          | SYSTEM INFORMATION     | SYSTEM INFORMATION Submenu           | Press "OK" to enter to SYSTEM INFORMATION Submenu (Only for Engineering purpose, don't use) |
|       | 17/17                |          | NOISE LEVEL            | 0                                    | Informative (changing).   |
|       |                      |          | GLOBAL MOTION          | 0                                    | Informative (changing).   |
|       |                      |          | BIT RATE               | 0                                    | Informative.  |
|       |                      |          | Scan name search       | 2                                    | Changeable between 0 and 255.   |
|       |                      |          | VPS code               | FFFF                                 | Informative.  |
|       |                      |          | 830/1 code             | FFFF                                 | Informative.  |
|       |                      |          | 830/2 code             | FFFF                                 | Informative.  |
|       |                      |          | Top TXT enabled        | 1                                    | Press "◀" or "▶" to change 0/1.   |
|       |                      |          | CEC                    | off                                  | Press "◀" or "▶" to change off/on.  |

## 6. Video Signal Adjustment Procedure

### 6.1. RGB SCART ADC

1. Enter in Service mode.
2. Press “▼” until selecting “ADC ADJUST” option.
3. Press “OK”.
4. “ADC ADJUST” menu appears.
5. Press “▼” until selecting “ADJUST” option.
6. Press “▶” until selecting “Internal Signal”.
7. Press “▲” until selecting “MODE” option.
8. Press “▶” until selecting “RGB”.
9. Press “▼” until selecting “AUTO ADC” option.
10. Press “▶”, the adjustment starts.
11. “SUCCESS” appears when the adjustments finish.
12. Exit of Service mode.

### 6.2. COMPONENTS ADC

1. Enter in Service mode.
2. Press “▼” until selecting “ADC ADJUST” option.
3. Press “OK”.
4. “ADC ADJUST” menu appears.
5. Press “▼” until selecting “ADJUST” option.
6. Press “▶” until selecting “Internal Signal”.
7. Press “▲” until selecting “MODE” option.
8. Press “▶” until selecting “YPbPr(SD)” or “YPbPr(HD)”
9. Press “▼” until selecting “AUTO ADC” option.
10. Press “▶”, the adjustment starts.
11. “SUCCESS” appears when the adjustments finish.

**Note:** both SD and HD are adjusted.

12. Exit of Service mode.

### 6.3. PC IN RGB ADC

1. Enter in Service mode.
2. Press “▼” until selecting “ADC ADJUST” option.
3. Press “OK”.
4. “ADC ADJUST” menu appears.
5. Press “▼” until selecting “ADJUST” option.
6. Press “▶” until selecting “Internal Signal”.
7. Press “▲” until selecting “MODE” option.
8. Press “▶” until selecting “PC-RGB”.
9. Press “▼” until selecting “AUTO ADC” option.
10. Press “▶”, the adjustment starts.
11. “SUCCESS” appears when the adjustments finish.
12. Exit of Service mode.

## 7. White Balance Adjustment

Condition: AV MODE= **Dynamic** (backlight at max.).

- Adjustments reference device: **Minolta CA-210**

- Adjustments target: **x=0.300, y=0.310**

High: adjustments spec  $\pm 0.001$ , inspection spec:  $\pm 0.002$

Low: adjustments spec  $\pm 0.002$ , inspection spec:  $\pm 0.004$

1. Press "▼" until selecting "GAMMA" option.
2. Press "OK".
3. "GAMMA" menu appears.
4. Press "▼" until selecting "MGAMMA RESET".
5. Press "►", to restore default values.
6. "MGAMMA RESET SUCCESS" appears.
7. Press "P+" to increase one page.
8. Press "1", appears "Internal Adjustments Pattern 1".
9. Hold the default value for "MGAMMA G1".  
(Note: next, try to get the (x, y) adjustments target, changing "MGAMMA R1" and "MGAMMA B1" as follow).
10. Press "▼" until selecting "MGAMMA R1".
11. Press "◀ ▶" until you obtain the desired value.
12. Press "MENU" to return to previous menu.
13. Press "▼" until selecting "MGAMMA B1".
14. Press "◀ ▶" until you obtain the desired value.
15. Press "MENU" to return to previous menu.

(Note: In case of not being possible to achieve the desired (x, y) target, try to get it by changing also the "MGAMMA G1")

16. Press "2", appears "Internal Adjustments Pattern 2".
17. Repeat from step 9 to 15 for the "MGAMMA R2" and "MGAMMA B2".
18. Press "3", appears "Internal Adjustments Pattern 3".
19. Repeat from step 9 to 15 for the "MGAMMA R3" and "MGAMMA B3".
20. Press "4", appears "Internal Adjustments Pattern 4".
21. Repeat from step 9 to 15 for the "MGAMMA R4" and "MGAMMA B4".
22. Press "5", appears "Internal Adjustments Pattern 5".
23. Repeat from step 9 to 15 for the "MGAMMA R5" and "MGAMMA B5".
24. Press "6", appears "Internal Adjustments Pattern 6".
25. Repeat from step 9 to 15 for the "MGAMMA R6" and "MGAMMA B6".
26. Press "▼" until selecting "MGAMMA WRITE".
27. Press "►", to save the new values.
28. "MGAMMA WRITE SUCCESS" appears.

### NOTE:

For activating the W/B flag, only is necessary to send the order MGAMMA WRITE. After this action, the "W" W/B flag will change to "1".

## 8. Initialization to factory setting

Caution: When the factory settings have been made, all user setting data, including the channel settings, are initialized. (The adjustments done in the adjustment process mode are not initialized.) Keep this in mind when initializing these settings.

1. Enter in Service mode.
2. Press “▼” or “▲” key until selecting INIT.
3. Press OK key.
4. INIT menu appears and “Factory init” option is selected.
5. Press “◀” or “▶” until selecting the option desired (EURO/RUSSIA/SWEDEN/UK/EAST EUROPE).
6. Press OK key and initialization starts.
7. OK, EURO message appears for EURO option when the setting is complete.  
OK, RUSSIA message appears for RUSSIA option when the setting is complete.  
OK, SWEDEN message appears for SWEDEN option when the setting is complete.  
OK, UK message appears for UK option when the setting is complete.  
OK, EAST EUROPE message appears for EAST EUROPE option when the setting is complete.

Note: Never turn the power off during initialization.

To exit the adjustment process mode, unplug the AC power cord from the outlet to forcibly turn off the power.

The following settings will be back to their factory ones.

- User settings
- Channel data (e.g. broadcast frequencies)
- Maker option setting
- Password data

## 9. Lamp error detection

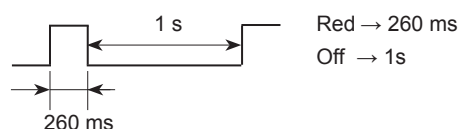
### 1. Function description

This LCD colour television has a function (lamp error detection) to be turned OFF the TV set automatically for safety criteria when the lamp or lamp circuit is abnormal.

If the lamp or lamp circuit is abnormal, or some other errors happen, and the lamp error detection is executed, the following occurs:

- a. The TV set is turned OFF automatically 20 seconds after it is turned ON by the user.  
(The power LED on the front side of TV turns from green to red)
- b. If the situation “a.” happens 5 times sequentially, it becomes impossible to turn on the power.  
(The power LED turns from green to red and keeps blinking in red).

LED Flashing timing



### 2. Countermeasures

- a. Checking with [L Error Check Off]. Repair the problem that produces the LAMP ERROR. The TV remains with power LED blinking until K mode is forced by local keyboard, in order to disable the LAMP ERROR detection. To disable the LAMP ERROR feature is necessary enter in K mode by pressing “VOL DOWN” and “→” keys at same time when the AC cord is plugged in.
- b. Resetting the LAMP ERROR counter. After the lamp and lamp circuit are found out of trouble, the LAMP ERROR counter should be reset. If a LAMP ERROR is detected five consecutive times, the power cannot be turned on.

**Method 1:** Using the cursor (UP/DOWN) key, move to the cursor to [L Error Reset] on Line 6 of ETC Menu Fig 4. With the cursor (LEFT/RIGHT) keys reset the value to “0”.

**Method 2:** In the case the TV is not blocked (less than 5 consecutive errors), switch on the Set. After 30 minutes working, the LAMP ERROR counter will be reset automatically.

## 10. Public Mode (Hotel mode)

### 1. How to Enter in the Public Mode (Hotel Mode).

There are three following ways to display the Public Mode setting screen.

#### **Method 1:**

Turn on the power and enter in the Service mode as usual and select line 8 [PUBLIC MODE].

#### **Method 2:**

Unplug the AC power cord.

While pressing "VOL+" and "→" keys at the same time, plug the AC power cord.

Then, when you are asked for the password, enter "0027".

After this sequence the TV will turn on showing the Public Mode setting screen as it is shown in Fig. 5.

In another case, the screen is erased, and it operates in the ordinary mode.

#### **Method 3:**

By special R/C code: RC table LCD, SYS CORD: 0x78, RC DATA: (HEX) 0xC7, (DEC) 199.

Then, when you are asked for the password, enter "0027".

After this sequence the TV will turn on showing the Public Mode setting screen as it is shown in Fig. 5.

Is possible to select each item of function by pressing cursor UP/DOWN keys on the remote control or CH (UP/DOWN) keys on the LCD TV.

The setting position of each item of functions is made by pressing cursor RIGHT/LEFT keys on the remote control or VOL (+) / (-) keys on the LCD TV.

Set to ON the HOTEL MODE function to active it.

Select EXECUTE position after you set all function, and press cursor RIGHT/LEFT keys on the remote control or VOL (+) / (-) keys on the LCD TV for confirmation.

Unplug and plug the AC power cord to take effect all the changes.

### 2. Public Mode Settings.

#### 1. POWER ON FIXED [VARIABLE ↔ FIXED]

When it is set to "FIXED" the TV is impossible to be switch off by Main Switch or Remote Control.

#### 2. MAXIMUM VOLUME [0 ↔ 60]

Is possible to set the maximum volume at limited level.

#### 3. VOLUME FIXED [VARIABLE ↔ FIXED]

Is possible to fix the sound volume at limited level.

When "FIXED" is selected the sound volume before limited is fixed.

#### 4. VOLUME FIXED LEVEL [0 ↔ 60]

If "FIXED" has been selected, is possible to set a fixed volume at the level that is chosen.

#### 5. RC BUTTON [RESPOND ↔ NO RESPOND]

If "NO RESPOND" is selected, the remote control keys are inoperative.

#### 6. PANEL BUTTON [RESPOND ↔ NO RESPOND]

If "NO RESPOND" has been selected, the set's keys remain deactivated (Except POWER key).

#### 7. MENU BUTTON [RESPOND ↔ NO RESPOND]

If "NO RESPOND" has been selected, "MENU" key, of remote control, is inoperative.

## 10. Public Mode (Hotel mode) (continued)

8. ON SCREEN DISPLAY [On ↔ Off]  
If "NO" has been selected, the On Screen Display does not appear.
9. INPUT MODE START [NORMAL → TV → SCART → COMPONENTS → HDMI1 → HDMI2 → HDMI3 → AV → MEDIA PLAYER]  
When any other item than "NORMAL" has been selected, the sets will start in a selected input mode at the next power-on.
10. INPUT MODE FIXED [VARIABLE → FIXED]  
"FIXED" has been selected, any channels and input modes other than those selected at the start mode cannot be picked up.
11. INPUT TV MODE PROGRAM NUMBER [NORMAL → 1-999 → NORMAL]  
When any other item than "NORMAL", i.e. number, has been selected, and "INPUT MODE START" option is set to "TV", the sets will start in the selected service / program number at the next power-on.
12. RC PATH THROUGH [ON ↔ OFF] T.B.D.
13. HOTEL MODE [ON ↔ OFF]  
If ON has been selected the HOTEL MODE is activated.
14. RESET  
Cancel all Public Mode settings. (It returns to the factory settings)
15. EXECUTE  
Select this item, and press cursor RIGHT / LEFT keys on the remote control or VOL (+) / (-) keys on the LCD TV for confirmation the functions settings.

## 11. SMART LOADER

### Description.

The Smartloader is a function implemented in the service software of SEES designed LE200 series intended to easily replicate the user settings of one TV into another. These settings include (but not restricted to): picture and audio, tuning set-up, language and country selection, PIN, child locked programs... Factory adjustments are not copied as they are different for every TV.

The Smartloader makes possible the user data to be stored in a memory device connected to the USB terminal of the TV that is used as reference and later load those data into other TVs by using their respective USB terminal.

### How it works.

In reference TV:

1. Insert a memory device in the USB slot.
  2. Enter in service mode, select Factory Menu and SMARTLOADER option.
  3. Select "Save settings to USB" and press the RIGHT cursor in the remote control.
  4. Wait until "OK" is displayed, the file has been successfully created in the root directory of the memory device.
- In case of error, an explanation message is shown.

In TV to be cloned:

1. Insert a memory device with a file in it obtained following the above procedure.
2. Enter in service mode, select Factory Menu and SMARTLOADER option.
3. Select "Load settings from USB" and press the RIGHT button in the remote control.
4. After some seconds, "OK, reboot TV set" is displayed. In case of error, an explanation message is shown.
5. As indicated, reboot the TV to load the new settings.

Very important: All the TVs must have the same software version and hardware.

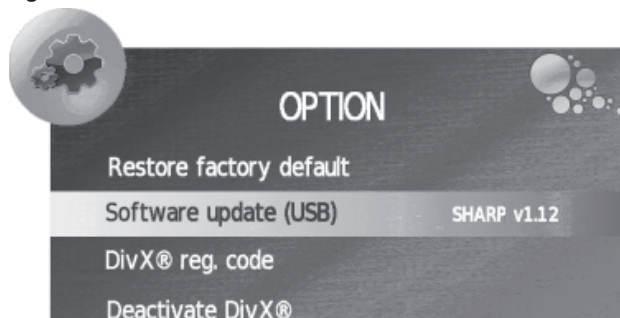
## SOFTWARE UPDATING

### 1. Introduction

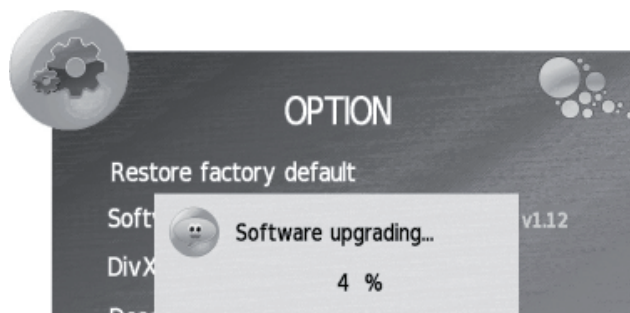
1. In order to proceed with the Software Updating do not enter into Service Mode.
2. The TV should be in normal operation (ON).

### 2. Procedure

1. Insert the USB memory into the USB terminal with the file name "**MERGE.bin**"(for LE210) or "**MERGE\_aes.bin**"(for LE220) on the root directory.
2. Press "MENU".
  - "PICTURE" menu appears on screen.
3. Press "►" until selecting "OPTION" menu.



4. Press "▼" until selecting "Software update (USB) Sharp v\*.\*".
  - The current software version is displayed.
5. Press "OK"
  - "**Are you sure? Yes - No**" message is displayed.
6. Press "◀" until selecting "Yes".
7. Press "OK".
  - The software update process starts.



- "Software upgrading... \*\*%" message appears.
- The upgrading process is finished, the LCD-TV restarts.

NOTE: If the "MERGE.bin" (for LE210) or "MERGE\_aes.bin"(for LE220) on the USB memory is not the proper for this model, an ERROR message is shown on screen and the LCD TV restarts itself. No upgrade is made.

8. Remove the AC cord and plug it again.
9. Return to OPTION menu to check that the version has been updated successfully.

#### NOTE:

If the TV is switched off during the upgrade process, when it is switched on again, the Power LED flashes: Violet for 130 ms and blue for 1.5 s, with NO screen until it is detected in the USB memory a file "**MERGE.bin**"(for LE210) or "**MERGE\_aes.bin**" (for LE220). Then the power LED will flash: Violet for 40 ms and blue for other 40 ms, with NO screen while the new software is uploaded. Once the process is completed, the TV set will start automatically.



## MAJOR ICs INFORMATION

### 1. General ICs Information

#### Main Unit ICs:

- **IC 201 (LE210):** Digital DVBT / VIF Demodulator  
Part number: MSB1220LQFP  
Sharp code: RH-IXC868WJZZQ

The MSB1220-LF is a DVB-T demodulator. It is fully compliant with the DVB-T (ETSI ET 300 744), D-Book 5.0 and NORDIG unified specification. Converts IF differential signals to MPEG-2/4 transport stream format. It can be used in all 2k, 4k and 8 k modes. The device includes a high performance 11 bit A/D converter capable of accepting direct IF at 36 or 44 Mhz. A digital filter with high rejection capability is also cope with digital or analog adjacent channel. The frequency capture range is sufficient to compensate for the combined offset introduced by the tuner and broadcaster without re-programming the tuner.

- **IC 201 (LE220):** Digital DVBT / VIF Demodulator  
Part number: MSB1222-LF  
Sharp code: RH-IXD148WJZZQ

The MSB1222-LF is a DVB-T/DVB-C demodulator. It is fully compliant with the DVB-T (ETSI ET 300 744), D-Book 5.0 and NORDIG unified specification. Also is compliant with DVB-C (EN 300429) and ITU-T J.83 Annex A/C. Converts IF differential signals to MPEG-2/4 transport stream format. It can be used in all 2k, 4k and 8 k modes. The device includes a high performance 11 bit A/D converter capable of accepting direct IF at 36 or 44 Mhz. A digital filter with high rejection capability is also cope with digital or analog adjacent channel. The frequency capture range is sufficient to compensate for the combined offset introduced by the tuner and broadcaster without re-programming the tuner.

- **IC 306:** Audio power IC  
Part number: MSH 9000-LF  
Sharp code : RH-IXC867WJQZY

10W-Ch audio power class-D operation for driving bridged-tied stereo speakers.

- **IC 309:** Headphones amplifier.  
Part number: BH3547-E2  
Sharp code: VHIBH3547F+-1L

The BH3547 is a 6 dB gain headphones amplifier. It built-in mute function for preventing pop noise when power supply turns On or Off.

Moreover , built-in thermal shutdown circuit to prevent short circuit .

- **IC 1007 :** 64M-Bit Serial Flash  
Part number: MX25L6445EMI-10G-TR  
Sharp code: RH-IXD012WJZZY

The MX25L6445EMI ia a 64 M-Bit serial flash, 3,3 V single operation. The flash memory stores the main software that is used for the main CPU (IC 1001).

- **IC 1001:** All – in – one DTV Processor  
Part number: MSD3303GX  
Sharp code : RH-IXC869WJQZQ

The MSD3303GX is a system one chip for flat panel integrated digital television. It integrating MPEG2 and h.264 high definition video decoders into a single device. By including a flexible AV decoder capable of decoding a plethora of high definition, USB connectivity and a powerful CPU.

- **IC 1002 & IC 1003 :** 512 Mb DDR2 SDRAM  
Part number: K4T51163QI  
Sharp code: RH-IXD228WJZZQ

The 512Mb DDR2 SDRAM is organized as 16Mbit x 8 I/Os x 4 banks device. This synchronous device achieves high speed double-data-rate transfer rates of up to 800Mb/sec/pin (DDR2-800) for general applications.

All of the control and address inputs are synchronized with a pair of externally supplied differential clocks (CK rising and CK falling).

This device operates with single 1,8V power supply .

- **IC 1901, IC 1902 & IC 1903 :** NVM of HDMI inputs (EDID)  
Part number: K24C02C  
Sharp code: RH-IXD080WJZZY

The K24C02C is a 2-wire (I2C bus type) serial EEPROM that is electrically programmable. This NVM memory is associated to the MAIN MICRO. This EEPROM chip stores the data structure used to carry configuration information for optimal use of a display (EDID data) when use a HDMI signal input.

- **IC 1006** : NVM of settings and HDCP data  
Part number: IC M24C64  
Sharp code: VHIM24C64WN-1Y
- **IC 8102** : Power supply USB port protection  
Part number: AAT4614IGU-2-T1  
Sharp code: RH-IXD187WJZZY

The AAT4614 SmartSwitch is a current limited P-channel MOSFET power switch designed for high side load switching applications. This switch operates with inputs ranging from 2.4V to 5.5V, making it ideal for both 3V and 5V systems. An integrated current-limiting circuit protects the input supply against large currents which may cause the supply to fall out of regulation. Reverse current blocking is provided to protect the load switch from reverse current potentials while the device is shutdown. The AAT4614 is also protected from thermal overload which is limited by power dissipation and junction temperatures. Current limit threshold is programmed with a resistor from SET to ground and has been adjusted for levels up to 1.1A.

### **Power supply Unit ICs:**

- **U101:** PWM controller IC for 12V & 5.75V  
Part number: FAN6753

The highly integrated FAN6753 PWM controller provides several features to enhance the performance of flyback converters. To minimize standby power consumption, a proprietary adaptive green-mode function provides frequency modulation at light-load conditions. To avoid acoustic-noise problems, the minimum PWM frequency is set above 22KHz. This green-mode function enables the power supply to meet international power conservation requirements. With the internal high-voltage startup circuitry, the power loss due to bleeding resistors is also eliminated. FAN6753 integrates a full-range frequency-hopping function internally that helps reduce EMI emission of a power supply with minimum line filters. Its built-in synchronized slope compensation achieves stable peak-current-mode control.

FAN6753 provides many protection functions. In addition to cycle-by-cycle current limiting, the internal open-loop protection circuit ensures safety should an open-loop or output short-circuit failure occur.

- **U501:** PWM standby controller IC for 5Vs  
Part number: A6069H

The STR-A6069 is power ICs for switching power supplies, incorporating a power MOSFET and a current-mode type PWM controller IC. The low standby power is accomplished by the automatic switching between the PWM operation in normal operation and the burst-oscillation under light load conditions. The product achieves high cost-performance power supply systems with few external components.

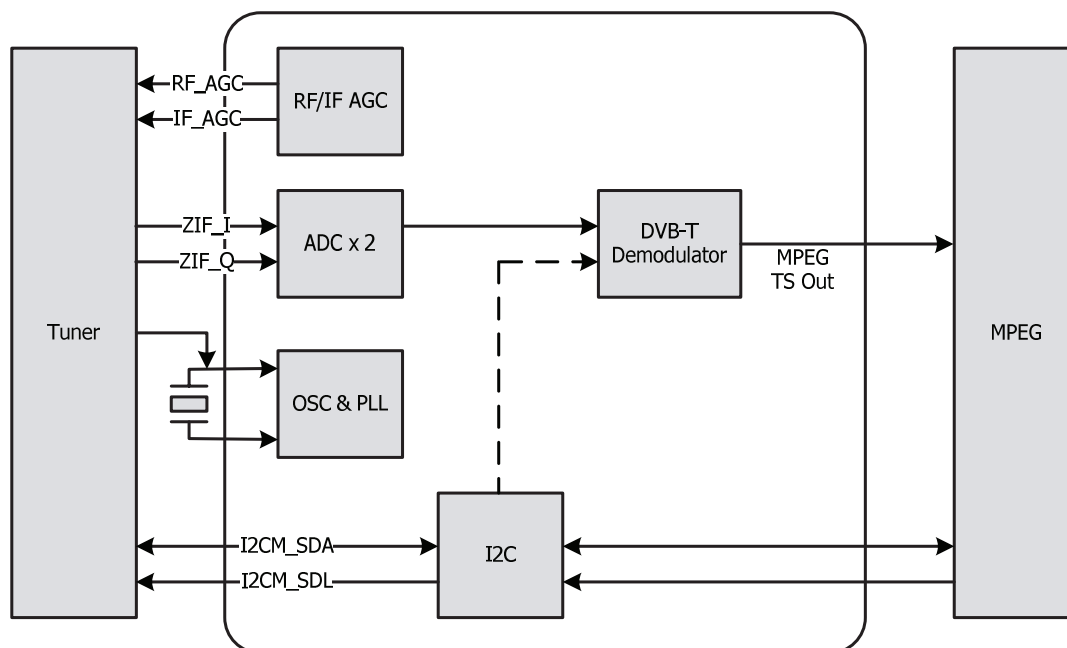
- **U901:** LED Driver controllers  
Part number: MP3389

The MP3389 is a step-up controller with 12-channel current sources designed for driving the WHITE LED arrays for large size LCD panel backlighting applications. The MP3389 uses current mode, fixed frequency architecture. The switching frequency is programmable by an external frequency setting resistor. It drives an external MOSFET to boost up the output voltage from a 5V to 28V input supply. The MP3389 regulates the current in each LED string to the programmed value set by an external current setting resistor. The MP3389 applies 12 internal current sources for current balance. And the current matching can achieve 2.5% regulation accuracy between strings. Its low 600mV regulation voltage on LED current sources reduces power loss and improves efficiency. PWM dimming is implemented with external PWM input signal or DC input signal. The dimming PWM signal can be generated internally, and the dimming frequency is programmed by an external setting capacitor.

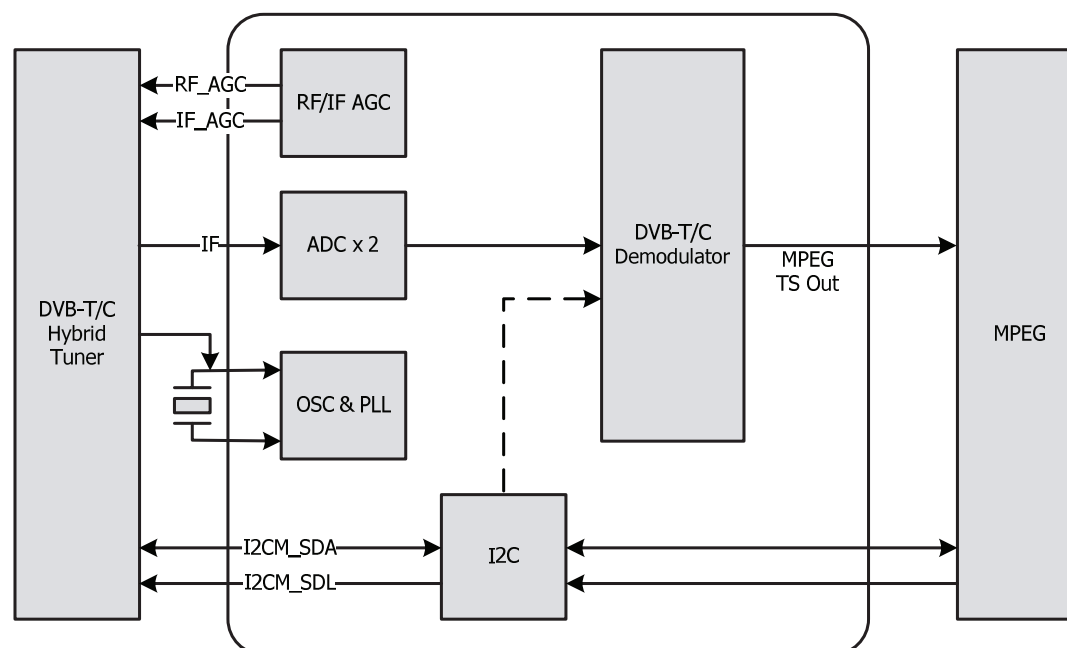
## 2. Detailed ICs Information, DUNTKF639WE (Main Unit)

### 2.1. IC201

#### 2.1.1. LE210 Series Block Diagram (MSB1220)



#### 2.1.1. LE220 Series Block Diagram (MSB1222)



## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.1. IC201 (LE210 & LE220 Series)

#### 2.1.2. Pin Description

##### Misc. Interface

| Pin Name | Pin Type             | Function              |
|----------|----------------------|-----------------------|
| EXTRSTN  | Input w/ 5V-Tolerant | Chip Reset; Low Reset |
| IF_AGC   | Output               | IF AGC                |
| RF_AGC   | Output               | RF AGC                |

##### Analog Interface

| Pin Name | Pin Type      | Function                  |
|----------|---------------|---------------------------|
| SSIFO    | Analog output | SSIF Output               |
| CVBSOUT  | Analog output | CVBS Output               |
| CLKO     | Analog output | Clock Output              |
| VR27     | Analog output |                           |
| SIFIP    | Analog input  | SIF Positive Input        |
| SIFIM    | Analog input  | SIF Negative Input        |
| VIFIM    | Analog input  | VIF Positive Input        |
| VIFIP    | Analog input  | VIF Negative Input        |
| VREFM    | Analog input  | Analog Reference Pin      |
| VREFP    | Analog input  | Analog Reference Pin      |
| ZIF_QM   | Analog input  | ADC ZIF Q Negative Input  |
| ZIF_QP   | Analog input  | ADC ZIF Q Positive Input  |
| ZIF_IM   | Analog input  | ADC ZIF I Negative Input  |
| ZIF_IP   | Analog input  | ADC ZIF I Positive Input  |
| XIN      |               | Crystal Oscillator Input  |
| XOUT     |               | Crystal Oscillator Output |

##### Transport Stream Interface

| Pin Name     | Pin Type | Function                            |
|--------------|----------|-------------------------------------|
| TS_DATA[7:0] | Output   | Transport Stream Data Bus Bit [7:0] |
| TS_VALID     | Output   | Transport Stream Data Valid         |
| TS_SYNC      | Output   | Transport Stream Packet Start       |
| TS_CLK       | Output   | Transport Stream Clock Out          |

##### Serial Interface

| Pin Name | Pin Type             | Function           |
|----------|----------------------|--------------------|
| I2CS_SCL | Input w/ 5V-Tolerant | Serial Clock       |
| I2CS_SDA | I/O w/ 5V-Tolerant   | Serial Data        |
| I2CM_SCL | I/O w/ 5V-Tolerant   | Serial Clock Tuner |
| I2CM_SDA | I/O w/ 5V-Tolerant   | Serial Data Tuner  |

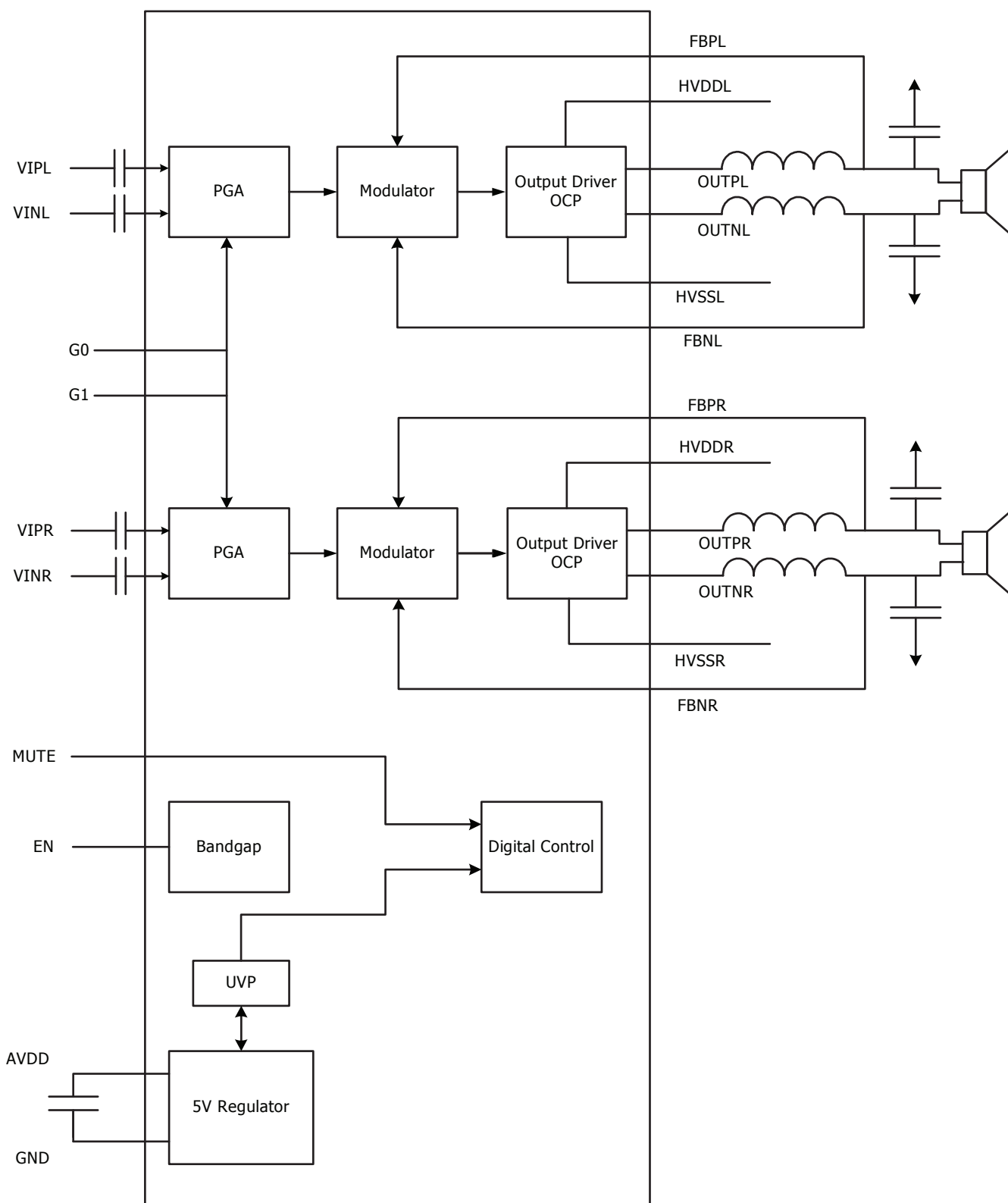
##### Power Pins

| Pin Name | Pin Type   | Function           |
|----------|------------|--------------------|
| AVDD_33  | 3.3V Power | Analog Power       |
| VDDC     | 1.2V Power | Digital Core Power |
| GND      | Ground     | Ground             |

## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.2. IC 306 (MSH 9000-LF)

#### 2.2.1. Functional Block Diagram



## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.2. IC 306 (MSH 9000-LF)

#### 2.2.2. Pin Description

##### Analog Interface

| Pin Name | Pin Type      | Function                              | Pin    |
|----------|---------------|---------------------------------------|--------|
| VIPL     | Analog Input  | Left channel P side audio input       | 3      |
| VINL     | Analog Input  | Left channel N side audio input       | 4      |
| VINR     | Analog Input  | Right channel N side audio input      | 7      |
| VIPR     | Analog Input  | Right channel P side audio input      | 8      |
| OUTNR    | Analog Output | Right channel N side switching output | 12, 14 |
| OUTPR    | Analog Output | Right channel P side switching output | 17, 19 |
| FBPR     | Analog Output | Right channel P side feedback         | 22     |
| FBNR     | Analog Output | Right channel N side feedback         | 23     |
| FBNL     | Analog Output | Left channel N side feedback          | 28     |
| FBPL     | Analog Output | Left channel P side feedback          | 29     |
| OUTPL    | Analog Output | Left channel P side switching output  | 32, 34 |
| OUTNL    | Analog Output | Left channel N side switching output  | 37, 39 |

##### Digital Interface

| Pin Name | Pin Type      | Function                     | Pin |
|----------|---------------|------------------------------|-----|
| G0       | Digital Input | Volume gain control bit 0    | 5   |
| G1       | Digital Input | Volume gain control bit 1    | 2   |
| MUTE     | Digital Input | Class-D is mute when EN=Hi   | 6   |
| EN       | Digital Input | Class-D is enable when EN=Hi | 26  |

##### Power Pins

| Pin Name | Pin Type     | Function                         | Pin            |
|----------|--------------|----------------------------------|----------------|
| HVSSL    | Ground       | Ground for left channel          | 1, 30, 31, 40  |
| HVSSR    | Ground       | Ground for right channel         | 10, 11, 20, 21 |
| HVDDR    | Analog Input | Supply voltage for Right channel | 13, 15, 16, 18 |
| HVDDL    | Analog Input | Supply voltage for Left channel  | 33, 35, 36, 38 |
| AVDD     | Analog Input | Internal reference voltage       | 25             |
| GND      | Ground       | Ground                           | 9, 24          |

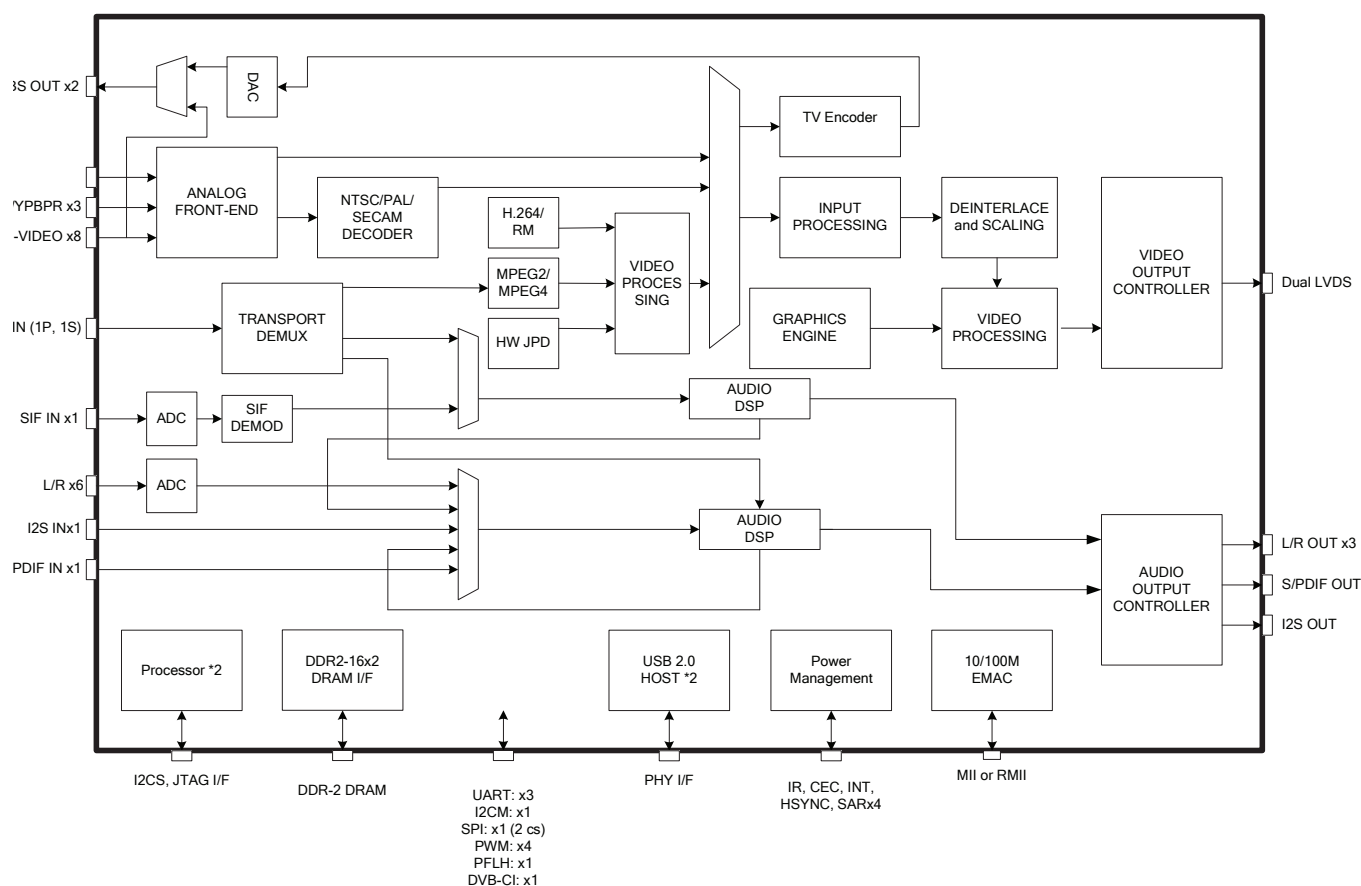
## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.1. Key Features

- Master CPU with MMU.
- DRAM controller supporting up to two 16-bit DDR2 interface.
- Power control module with ultra low power MCU available in stand by mode.
- Parallel interface for external parallel NOR flash and NAND flash support.
- H.264 decoder. Support resolution up to HDTV ( 1080i, 720p ) .
- MPEG-2 decoder.
- Video analog processor.
- NTSC/PAL/SECAM Video Decoder.
- Support Teletext mode.
- Two CVBS video outputs.
- Eight configurable CVBS, Y/C, S-video inputs.
- Multistandard sound Processor.
- AC3 decoder.
- I<sup>2</sup>S digital audio output.
- Six L/R audio line-inputs.
- SIF audio output.
- Stereo L/R output for main speaker.
- Two HDMI / HDCP compliant input port.
- CEC support.
- Fully programmable scaler and display processing.
- Support up to 10 bit LVDS full HDTV panel interface.
- Support USB 2.0
- Support Common Interface for conditional access.

#### 2.3.2. Block Diagram



## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.3. Pin Description

##### Analog Interface

| Pin Name | Pin Type                             | Function  | Pin |
|----------|--------------------------------------|---|-----|
| VCLAMP   |                                      | CVBS/YC Mode Clamp Voltage Bypass                   | K4  |
| REFP     |                                      | Internal ADC Top De-coupling Pin                    | H4  |
| REFM     |                                      | Internal ADC Bottom De-coupling Pin                 | J4  |
| REXT     | Analog Input                         | External Resister 390 ohm to AVDD_33                | G4  |
| HSYNC0   | Schmitt Trigger Input w/ 5V-tolerant | HSYNC / Composite Sync for VGA Input from channel 0 | N2  |
| VSYNC0   | Schmitt Trigger Input w/ 5V-tolerant | VSYNC for VGA Input from channel 0                  | N1  |
| HSYNC1   | Schmitt Trigger Input w/ 5V-tolerant | HSYNC / Composite Sync for VGA Input from channel 1 | K3  |
| VSYNC1   | Schmitt Trigger Input w/ 5V-tolerant | VSYNC for VGA Input from channel 1                  | K2  |
| HSYNC2   | Schmitt Trigger Input w/ 5V-tolerant | HSYNC for VGA Input from channel 2                  | J5  |
| BINM     | Analog Input                         | Reference Ground for Analog Blue Input              | T3  |
| BIN0P    | Analog Input                         | Analog Blue Input from Channel 0                    | R1  |
| BIN1P    | Analog Input                         | Analog Blue Input from Channel 1                    | K1  |
| BIN2P    | Analog Input                         | Analog Blue Input from Channel 2                    | U1  |
| GINM     | Analog Input                         | Reference Ground for Analog Green Input             | R2  |
| GIN0P    | Analog Input                         | Analog Green Input from Channel 0                   | R3  |
| GIN1P    | Analog Input                         | Analog Green Input from Channel 1                   | L3  |
| GIN2P    | Analog Input                         | Analog Green Input from Channel 2                   | V2  |
| SOGIN0   | Analog Input                         | Sync On Green Input from Channel 0                  | P3  |
| SOGIN1   | Analog Input                         | Sync On Green Input from Channel 1                  | L2  |
| SOGIN2   | Analog Input                         | Sync On Green Input from Channel 2                  | V3  |
| RINM     | Analog Input                         | Reference Ground for Analog Red Input               | P1  |
| RIN0P    | Analog Input                         | Analog Red Input from Channel 0                     | P2  |
| RIN1P    | Analog Input                         | Analog Red Input from Channel 0                     | L1  |
| RIN2P    | Analog Input                         | Analog Red Input from Channel 0                     | V1  |

##### Analog Video Input/Output Interface

| Pin Name | Pin Type      | Function                                | Pin |
|----------|---------------|---|-----|
| CVBS7    | Analog Input  | CVBS (Composite) Video Input Channel 7  | M3  |
| CVBS6    | Analog Input  | CVBS (Composite) Video Input Channel 6  | M2  |
| CVBS5    | Analog Input  | CVBS (Composite) Video Input Channel 5  | N3  |
| CVBS4    | Analog Input  | CVBS (Composite) Video Input Channel 4  | M1  |
| CVBS3    | Analog Input  | CVBS (Composite) Video Input Channel 3  | T1  |
| CVBS2    | Analog Input  | CVBS (Composite) Video Input Channel 2  | U2  |
| CVBS1    | Analog Input  | CVBS (Composite) Video Input Channel 1  | U3  |
| CVBS0    | Analog Input  | CVBS (Composite) Video Input Channel 0  | W1  |
| VCOM1    | Analog Input  | CVBS Input Reference Ground             | T2  |
| VCOM0    | Analog Input  | CVBS Input Reference Ground             | Y3  |
| CVBSOUT0 | Analog Output | CVBS (Composite) Video Output Channel 0 | Y2  |
| CVBSOUT1 | Analog Output | CVBS (Composite) Video Output Channel 1 | AA2 |



## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.3. Pin Description (continued)

#### Analog Audio Input/Output Interface

| Pin Name                | Pin Type             | Function   | Pin |
|-------------------------|----------------------|--|-----|
| SIF0P                   | Analog Input         | SIF Audio Input Channel 0  | W3  |
| SIF0M                   | Analog Input         | Reference Ground for SIF Audio Input Channel 0   | W2  |
| I2S_OUT_MCK             | Output               | Audio Master Clock Output  | A8  |
| I2S_OUT_WS              | Output               | Word Select Output; 4mA driving strength   | B7  |
| I2S_OUT_BCK             | Output               | Audio Bit Clock Output   | C7  |
| I2S_OUT_SD              | Output               | Audio Serial Data Output; 4mA driving strength   | D8  |
| GPIO102/<br>I2S_OUT_SD2 | Output               | General Purpose Input/Output; 4mA driving strength /<br>Audio Serial Data Output; 4mA driving strength | C5  |
| GPIO103/<br>I2S_OUT_SD3 | Output               | General Purpose Input/Output; 4mA driving strength /<br>Audio Serial Data Output; 4mA driving strength | D5  |
| I2S_OUT_MUTE            | Output               | Audio Output Mute Control  | E7  |
| GPIO90/<br>I2S_OUT_MUTE |                      | General Purpose Input/Output; 4mA driving strength /<br>Audio Output Mute Control                      | D7  |
| SPDIFO                  | Output               | S/PDIF Audio Output; 4mA driving strength  | E9  |
| I2S_IN_WS/<br>GPIO67    | I/O                  | Word Select Input /<br>General Purpose Input/Output; 4mA driving strength                              | A7  |
| I2S_IN_BCK/<br>GPIO68   | I/O                  | Audio Bit Clock Input /<br>General Purpose Input/Output; 4mA driving strength                          | B8  |
| I2S_IN_SD               | Input                | Audio Serial Data Input  | C8  |
| SPDIFI                  | Input w/ 5V-tolerant | S/PDIF Audio Input   | F11 |
| AUL0                    | Analog Input         | Audio Line Input Left Channel 0  | Y1  |
| AUR0                    | Analog Input         | Audio Line Input Right Channel 0   | AA3 |
| AUL1                    | Analog Input         | Audio Line Input Left Channel 1  | AC4 |
| AUR1                    | Analog Input         | Audio Line Input Right Channel 1   | AE1 |
| AUL2                    | Analog Input         | Audio Line Input Left Channel 2  | AE2 |
| AUR2                    | Analog Input         | Audio Line Input Right Channel 2   | AE3 |
| AUL3                    | Analog Input         | Audio Line Input Left Channel 3  | AB1 |
| AUR3                    | Analog Input         | Audio Line Input Right Channel 3   | AA1 |
| AUL4                    | Analog Input         | Audio Line Input Left Channel 4  | AC2 |
| AUR4                    | Analog Input         | Audio Line Input Right Channel 4   | AB2 |
| AUL5                    | Analog Input         | Audio Line Input Left Channel 5  | AC3 |
| AUR5                    | Analog Input         | Audio Line Input Right Channel 5   | AB3 |
| AUCOM                   | Analog Input         | Reference Ground for Audio Line Input  | AB5 |
| AUVRM                   | Analog Output        | Negative Reference Voltage for Audio ADC   | AD5 |
| AUVRP                   | Analog Output        | Positive Reference Voltage for Audio ADC   | AE5 |
| AUVAG                   | Analog Output        | Reference Voltage for Audio Common Mode  | AC5 |
| AUOUTL2                 | Analog Output        | Main Audio Output Left Channel 2   | AD2 |
| AUOUTR2                 | Analog Output        | Main Audio Output Right Channel 2  | AC1 |
| AUOUTL1                 | Analog Output        | Main Audio Output Left Channel 1   | AD1 |
| AUOUTR1                 | Analog Output        | Main Audio Output Right Channel 1  | AD3 |
| AUOUTL0                 | Analog Output        | Main Audio Output Left Channel 0   | AD4 |
| AUOUTR0                 | Analog Output        | Main Audio Output Right Channel 0  | AE4 |

## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.3. Pin Description (continued)

##### Common Interface

| Pin Name                      | Pin Type | Function  | Pin   |
|-------------------------------|----------|---|---|
| PCMDATA[7:0]/<br>CI_DATA[7:0] | I/O      | PCMCIA Data[7:0] /<br>Common Interface Data[7:0]                    | AE14, AD14,<br>AC14, AB14,<br>AA14, AB20,<br>AC20, AD20   |
| PCMAADR[14:0]/<br>CI_A[14:0]  | Output   | PCMCIA Address[14:0] /<br>Common Interface Address[14:0]            | AB11, AE12,<br>AD12, AC12,<br>AB12, AA12,<br>AE13, AD13,<br>AC13, AB13,<br>AA13, AE19,<br>AD19, AC19,<br>AB19 |
| PCMIOR/<br>CI_RD              | Output   | PCMCIA Input/Output Read /<br>Common Interface Read                 | AA8   |
| PCMIOW/<br>CI_WR              | Output   | PCMCIA Input/Output Write /<br>Common Interface Write               | AB8   |
| PCMOEN                        | Output   | PCMCIA Output Enable  | AC6   |
| PCMWEN                        | Output   | PCMCIA Write Enable   | AC11  |
| PCMREG/<br>CI_CLK             | Output   | PCMCIA Register /<br>Common Interface Clock                         | AE20  |
| PCMCEN/<br>CI_CS              | Output   | PCMCIA Card Enable /<br>Common Interface Chip Select                | AA10  |
| PCMIRO/<br>CI_INT             | Input    | PCMCIA Interrupt Request /<br>Common Interface Interrupt            | AB7   |
| PCMWAIT/<br>CI_WACK           | Input    | PCMCIA Extend Bus Wait Cycle /<br>Common Interface Wait Acknowledge | AB10  |
| CI_RST                        | Output   | Common Interface Reset  | AC18  |
| CI_CD                         | Input    | Common Interface Card Detect  | AA20  |

##### TS Input Interface

| Pin Name     | Pin Type             | Function   | Pin                                    |
|--------------|----------------------|--|--|
| TS0CLK       | Input w/ 5V-tolerant | TS Clock   | AA5                                    |
| TS0DATA[7:0] | Input w/ 5V-tolerant | TS Data in Parallel; LSB (bit 0) is for serial TS data | AB4, AA4,<br>Y4, W4, V4,<br>U4, T4, R4 |
| TS0VALID     | Input w/ 5V-tolerant | TS Data Valid  | W5                                     |
| TS0SYNC      | Input w/ 5V-tolerant | TS Sync-Byte Indicator                                 | Y5                                     |
| TS1CLK       | Input w/ 5V-tolerant | 2 <sup>nd</sup> TS Clock                               | U22                                    |
| TS1DATA      | Input w/ 5V-tolerant | 2 <sup>nd</sup> TS Data in Parallel                    | V22                                    |
| TS1VALID     | Input w/ 5V-tolerant | 2 <sup>nd</sup> TS Data Valid                          | Y22                                    |
| TS1SYNC      | Input w/ 5V-tolerant | 2 <sup>nd</sup> TS Sync-Byte Indicator                 | W22                                    |

## 2. Detailed ICs Information, DUNTKF639WE (Main Unit) (continued)

### 2.3. IC 1001 (MSD3303GX)

#### 2.3.3. Pin Description (continued)

##### DVI/HDMI Interface

| Pin Name | Pin Type       | Function  | Pin  |
|----------|----------------|---|------|
| RXACKN   | DVI/HDMI Input | Negative DVI/HDMI Input for A Link Clock Channel  | F2   |
| RXACKP   | DVI/HDMI Input | Positive DVI/HDMI Input for A Link Clock Channel  | F1   |
| RXA0N    | DVI/HDMI Input | Negative DVI/HDMI Input for A Link Data Channel 0 | G3   |
| RXA0P    | DVI/HDMI Input | Positive DVI/HDMI Input for A Link Data Channel 0 | G2   |
| RXA1N    | DVI/HDMI Input | Negative DVI/HDMI Input for A Link Data Channel 1 | G1   |
| RXA1P    | DVI/HDMI Input | Positive DVI/HDMI Input for A Link Data Channel 1 | H3   |
| RXA2N    | DVI/HDMI Input | Negative DVI/HDMI Input for A Link Data Channel 2 | H2   |
| RXA2P    | DVI/HDMI Input | Positive DVI/HDMI Input for A Link Data Channel 2 | H1   |
| RXBCKN   | DVI/HDMI Input | Negative DVI/HDMI Input for B Link Clock Channel  | B1   |
| RXBCKP   | DVI/HDMI Input | Positive DVI/HDMI Input for B Link Clock Channel  | C3   |
| RXB0N    | DVI/HDMI Input | Negative DVI/HDMI Input for B Link Data Channel 0 | C2   |
| RXB0P    | DVI/HDMI Input | Positive DVI/HDMI Input for B Link Data Channel 0 | C1   |
| RXB1N    | DVI/HDMI Input | Negative DVI/HDMI Input for B Link Data Channel 1 | D3   |
| RXB1P    | DVI/HDMI Input | Positive DVI/HDMI Input for B Link Data Channel 1 | D2   |
| RXB2N    | DVI/HDMI Input | Negative DVI/HDMI Input for B Link Data Channel 2 | D1   |
| RXB2P    | DVI/HDMI Input | Positive DVI/HDMI Input for B Link Data Channel 2 | E3   |
| RXCCKN   | DVI/HDMI Input | Negative DVI/HDMI Input for C Link Clock Channel  | AC8  |
| RXCCKP   | DVI/HDMI Input | Positive DVI/HDMI Input for C Link Clock Channel  | AD8  |
| RXC0N    | DVI/HDMI Input | Negative DVI/HDMI Input for C Link Data Channel 0 | AE8  |
| RXC0P    | DVI/HDMI Input | Positive DVI/HDMI Input for C Link Data Channel 0 | AC9  |
| RXC1N    | DVI/HDMI Input | Negative DVI/HDMI Input for C Link Data Channel 1 | AD9  |
| RXC1P    | DVI/HDMI Input | Positive DVI/HDMI Input for C Link Data Channel 1 | AE9  |
| RXC2N    | DVI/HDMI Input | Negative DVI/HDMI Input for C Link Data Channel 2 | AD10 |
| RXC2P    | DVI/HDMI Input | Positive DVI/HDMI Input for C Link Data Channel 2 | AE10 |

## SOURCE OF DOCUMENTATION

### IC201 (MSB1220) LE210 Series

MSTAR Semiconductor: Preliminary Product Brief Version 0.1.  
Low Power DVB-T Demodulator.  
Doc. No.: msb1220\_pb\_v01. January 2009.

### IC201 (MSB1222) LE220 Series

MSTAR Semiconductor: Preliminary Product Brief Version 0.1.  
Low Power DVB-T/C Demodulator.  
Doc. No.: msb1222\_pb\_v01. January 2009.

### IC 306 (MSH 9000-LF)

MSTAR Semiconductor; Preliminary Product Brief Version 0.3.  
Power Management IC.  
Doc. No.: MSH9000\_pb\_v03. April 2009.

### IC1001 (MSD3303GX)

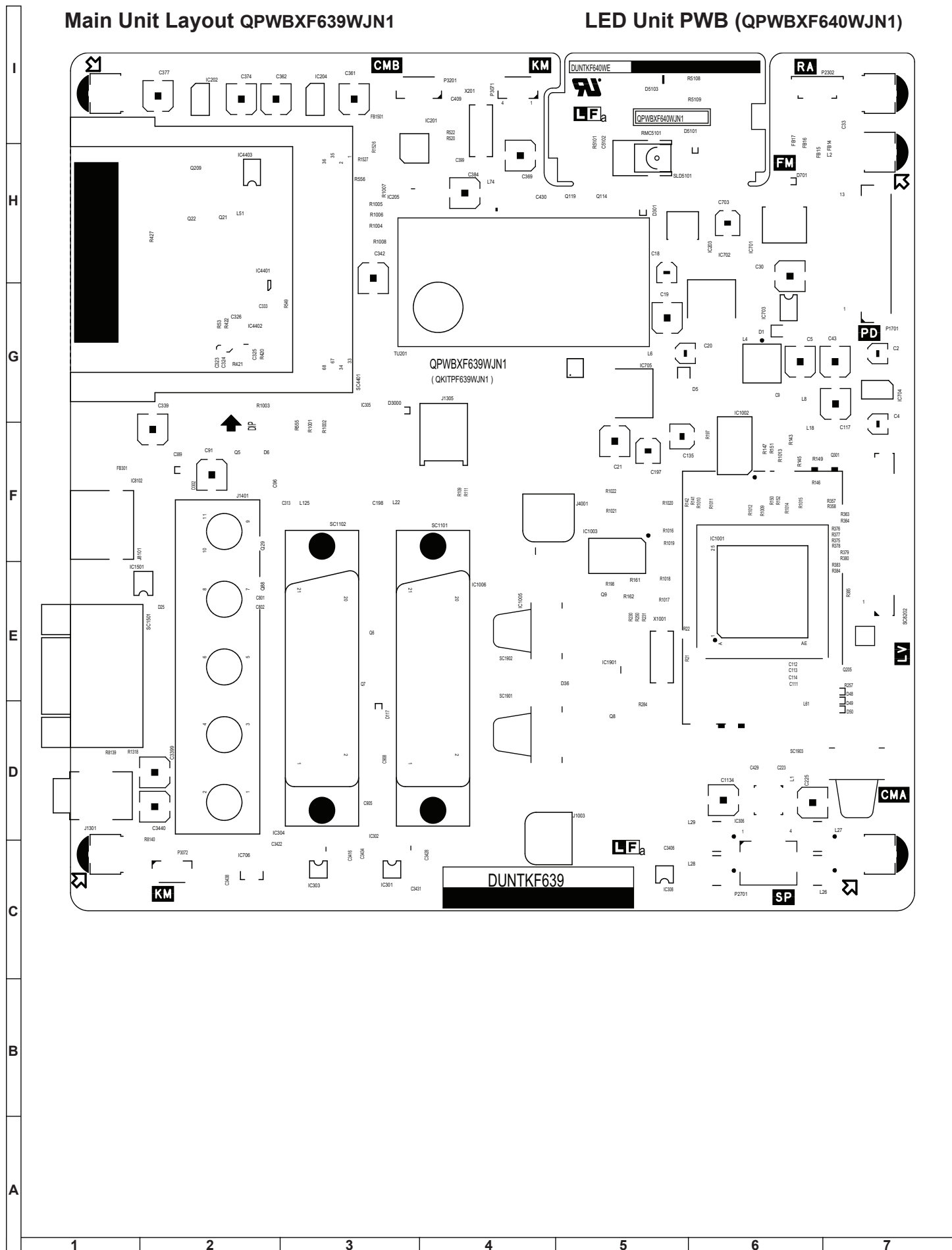
MSTAR Semiconductor; Preliminary Pin Diagram and Description. Version 0.2.  
DVB LCD/PDP DTV Processor.  
Doc. No.: MSD3303GX\_pin\_v02 . April 2009.

MSTAR Semiconductor; Block Diagram. Version 0.1.  
All-in-one DTV Processor.  
Doc. No.: MSD3303GX\_bd\_v01. April 2009.

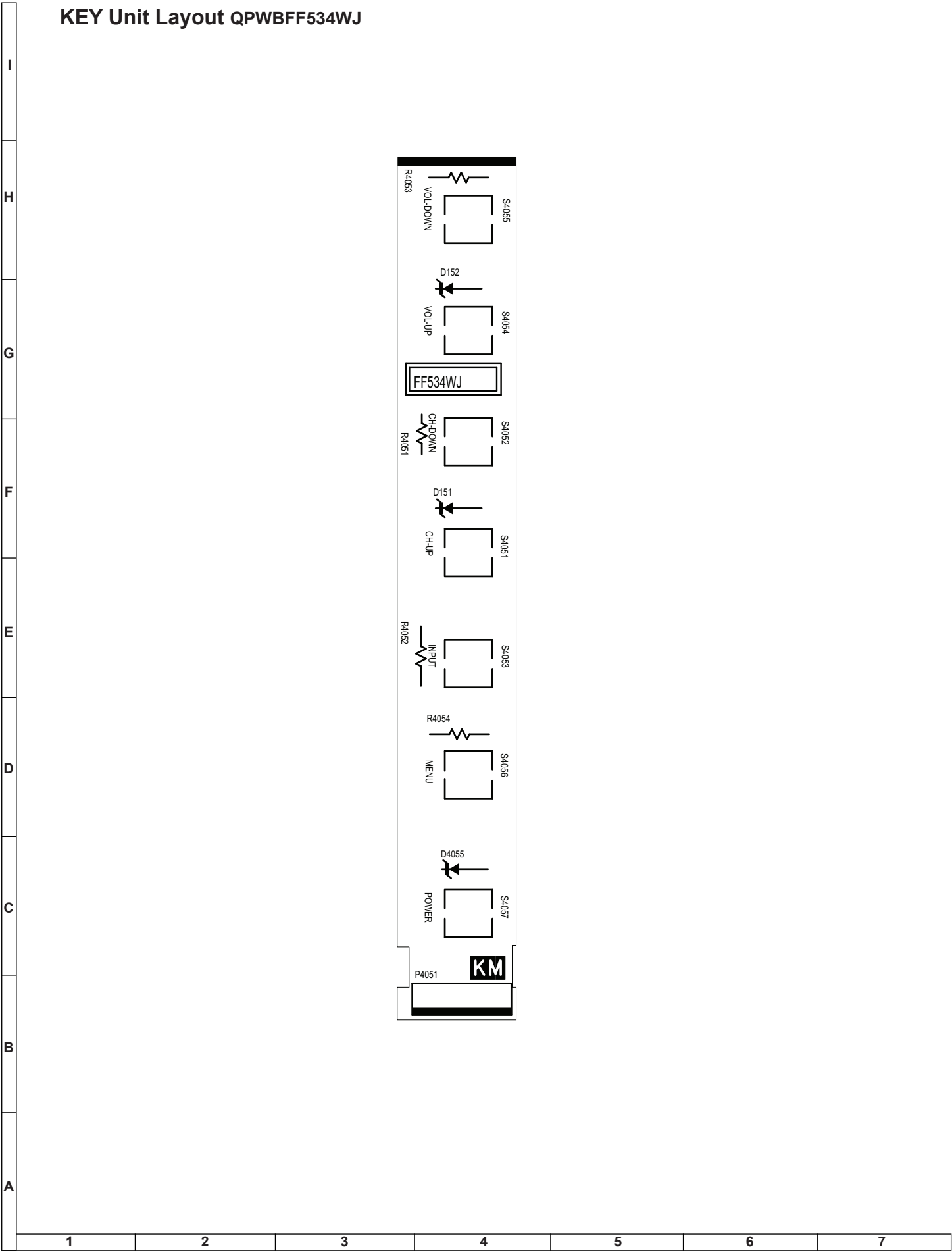
## CHASSIS LAYOUT

## Main Unit Layout QPWBXF639WJN1

## LED Unit PWB (QPWBXF640WJN1)

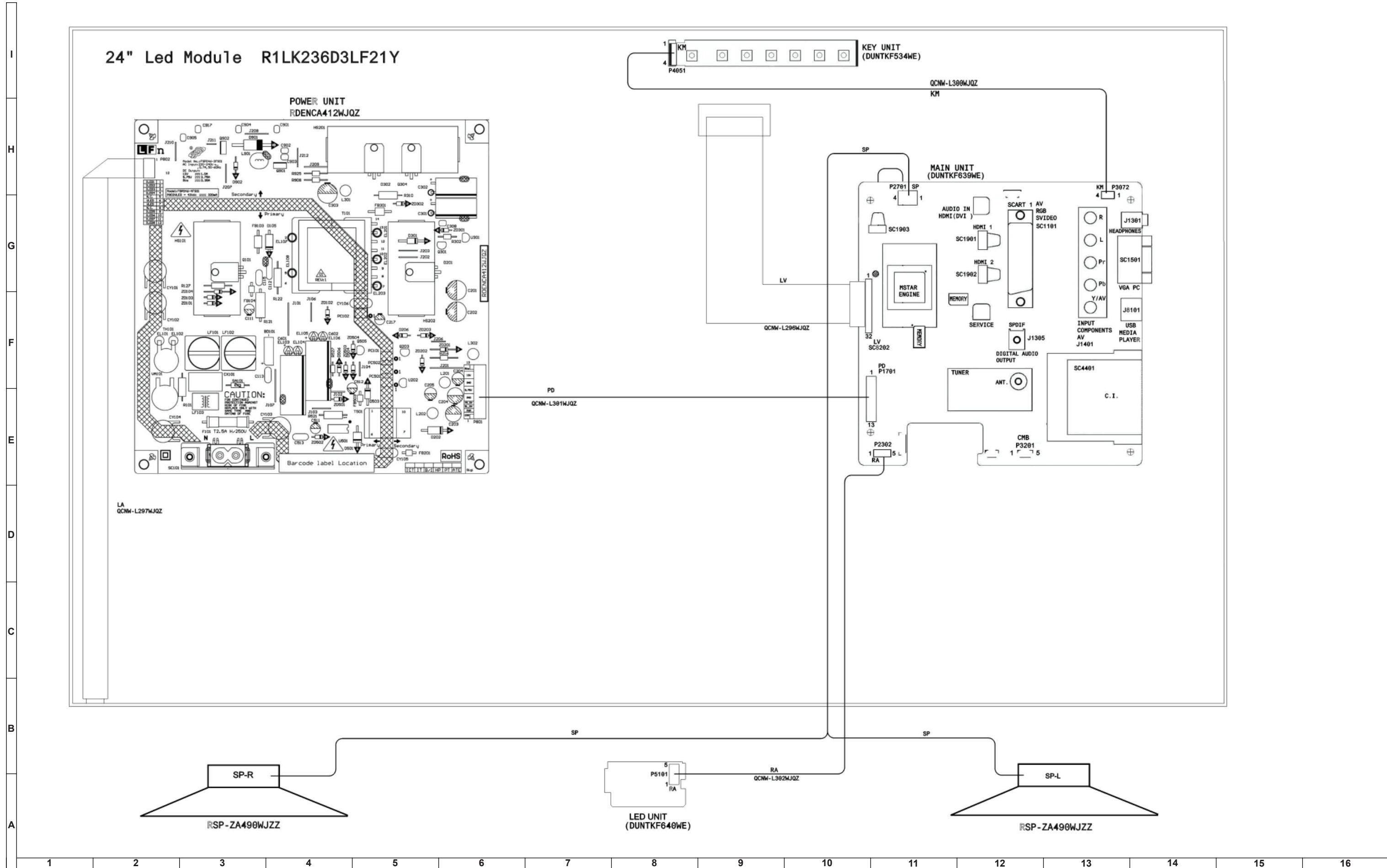


KEY Unit Layout QPWBFF534WJ





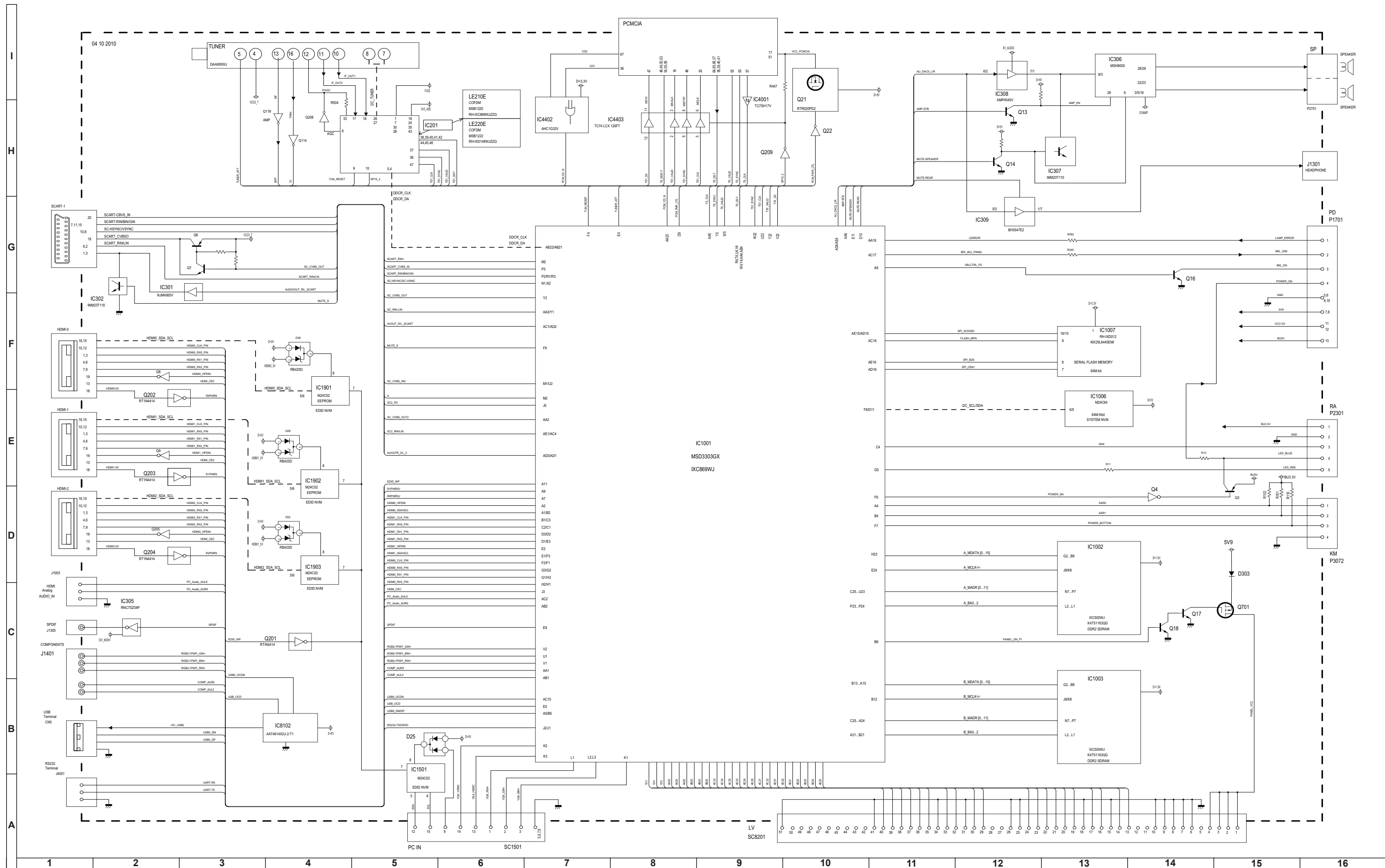
# OVERALL WIRING DIAGRAM



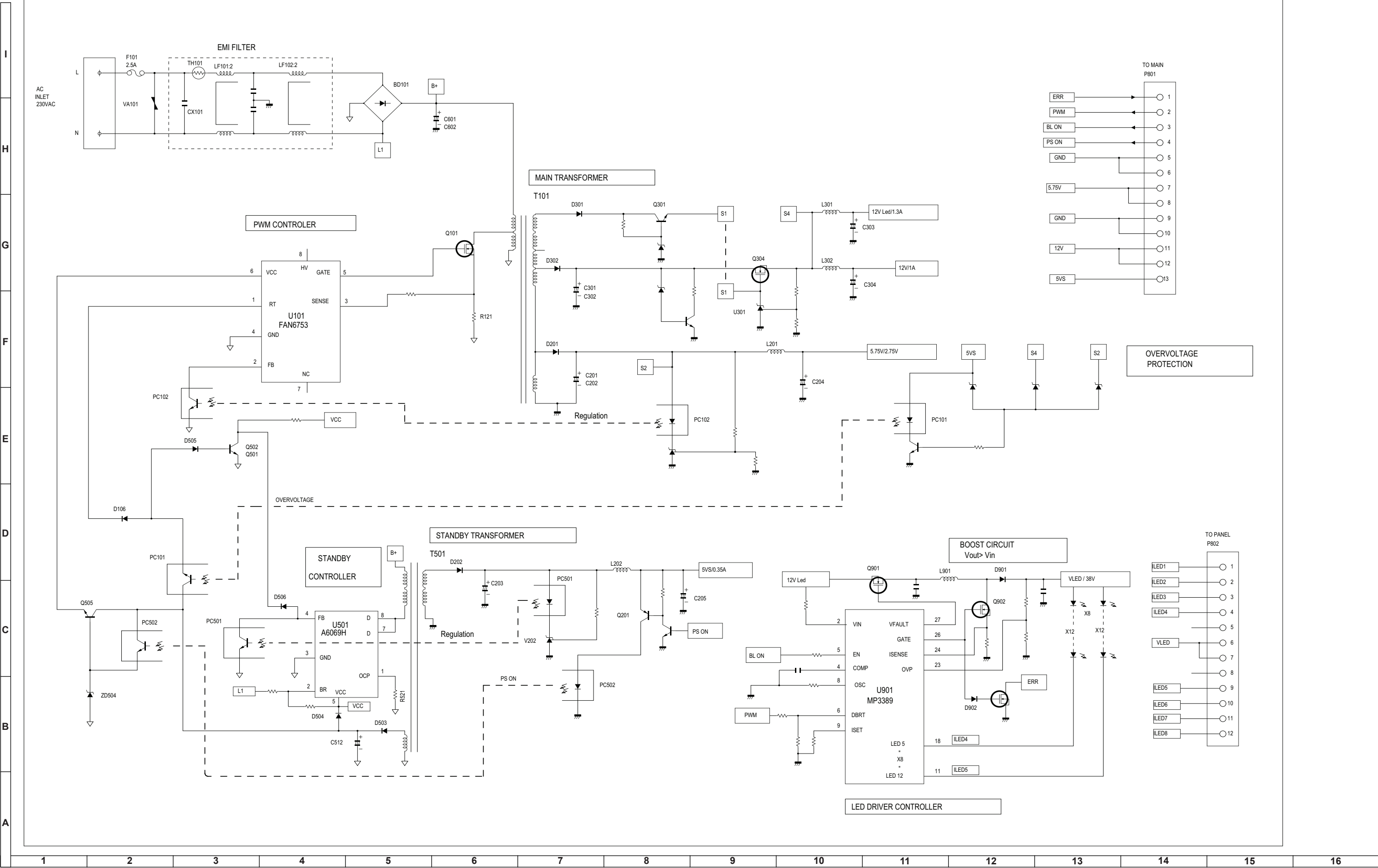




## MAIN BLOCK DIAGRAM



POWER BLOCK DIAGRAM RDENCA412WJQZ



SCHEMATIC DIAGRAMS

Description:

VOLTAGE MEASUREMENT CONDITION:

1. The voltages at test points are measured on the stable supply voltage of AC 230V. Signals are fed by a color bar signal generator for servicing purpose and the above voltages are measured with a 20k ohm/V tester.

INDICATION OF RESISTOR & CAPACITOR:

RESISTOR


1. The unit of resistance “Ω” is omitted. (K=kΩ=1000 Ω, M=MΩ).  
2. All resistors are ± 5%, unless otherwise noted. (J= ± 5%, F= ± 1%, D= ± 0.5%)  
3. All resistors are 1/16W, unless otherwise noted.  
4. All resistors are Carbon type, unless otherwise noted.

- Ⓒ: Solid                      Ⓜ: Cement  
Ⓢ: Oxide Film              Ⓣ: Special  
Ⓝ: Metal Coating

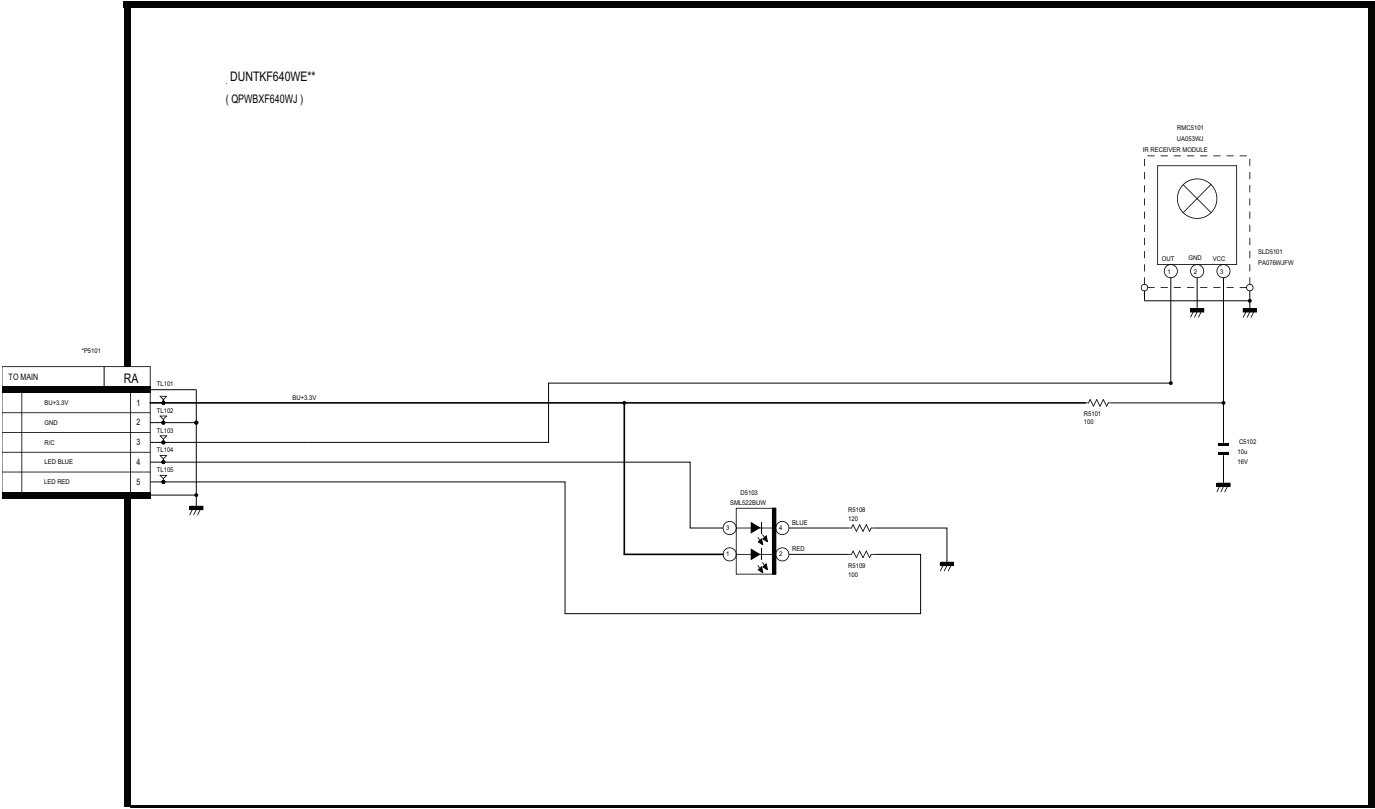
CAPACITOR

1. All capacitors are μF, unless otherwise noted. (P=pF=μμ F).  
2. All capacitors are 50V, unless otherwise noted.  
3. All capacitors are Ceramic type, unless otherwise noted.  
(ML): Mylar                      (TA): Tantalum  
(PF): Polypro Film              (ST): Styrol

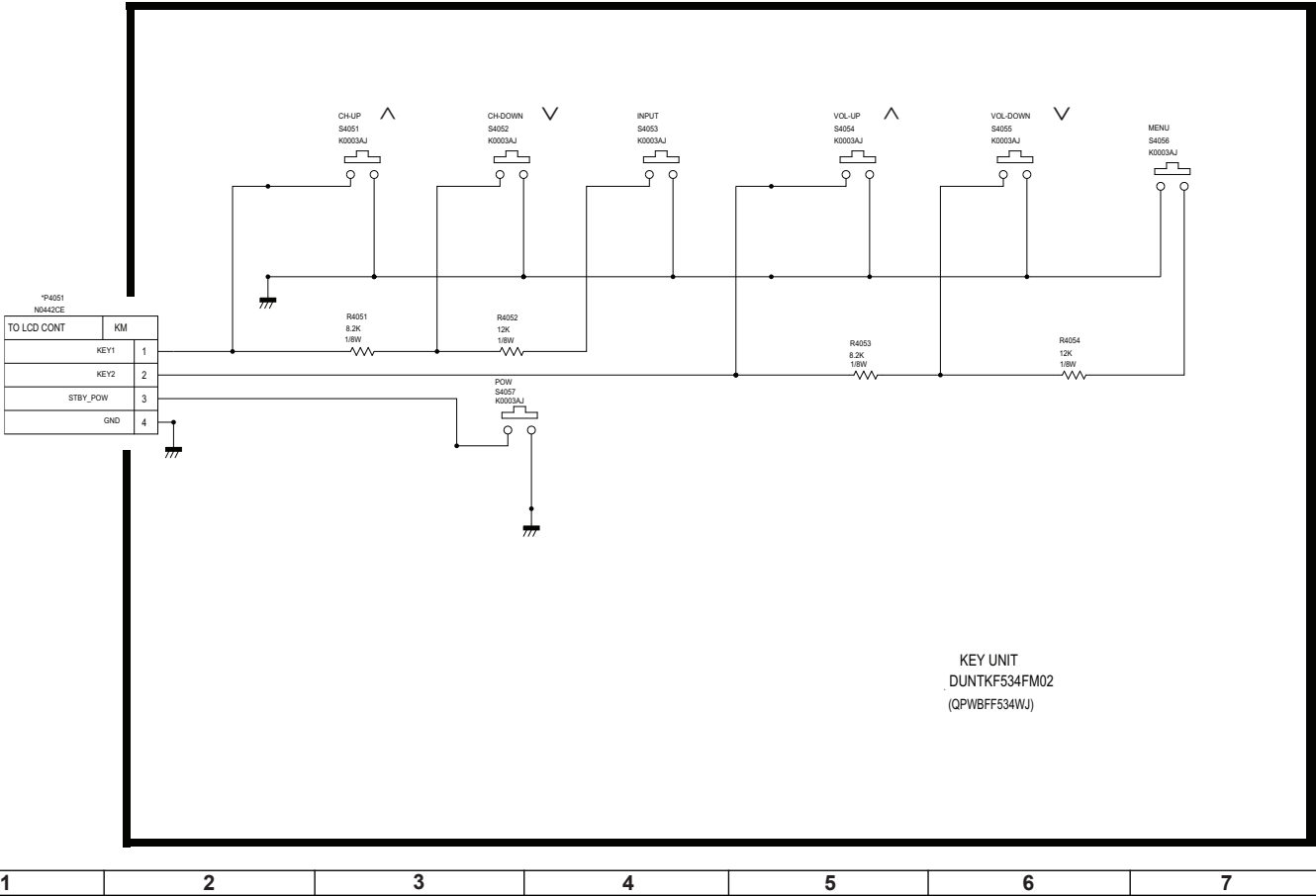
**CAUTION:**  
This circuit diagram is original one, therefore there may be a slight difference from yours.

**IMPORTANT SAFETY NOTICE:**  
PARTS MARKED WITH “ ⚠ ” (  )  
ARE  
IMPORTANT FOR MAINTAINING THE SAFETY OF  
THE SET. BE SURE TO REPLACE THESE PARTS  
WITH SPECIFIED ONES FOR MAINTAINING THE  
SAFETY AND PERFORMANCE OF THE SET.

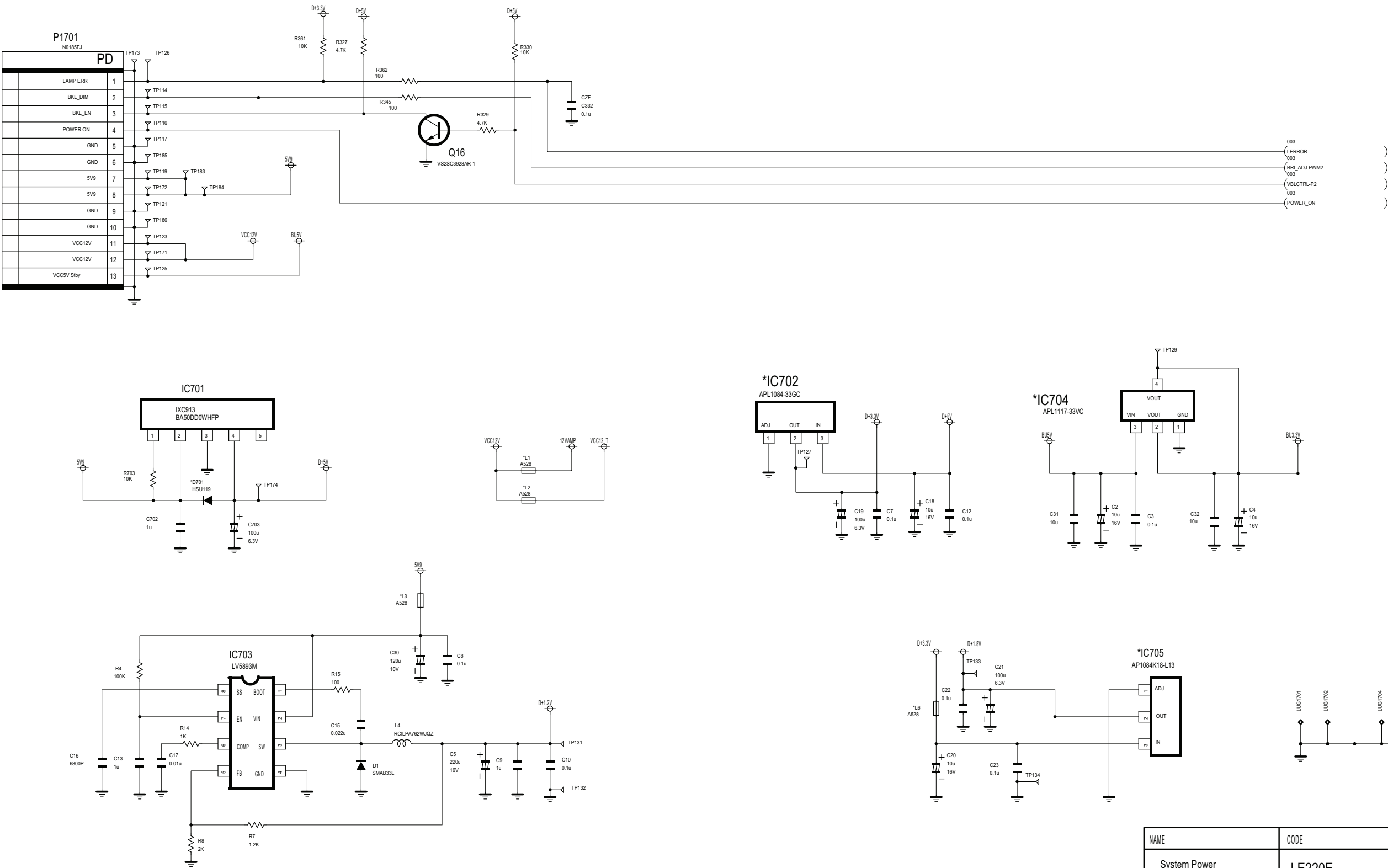
LED Unit Diagram      DUNTKF640WE



KEY Unit Diagram      DUNTKF534WE02

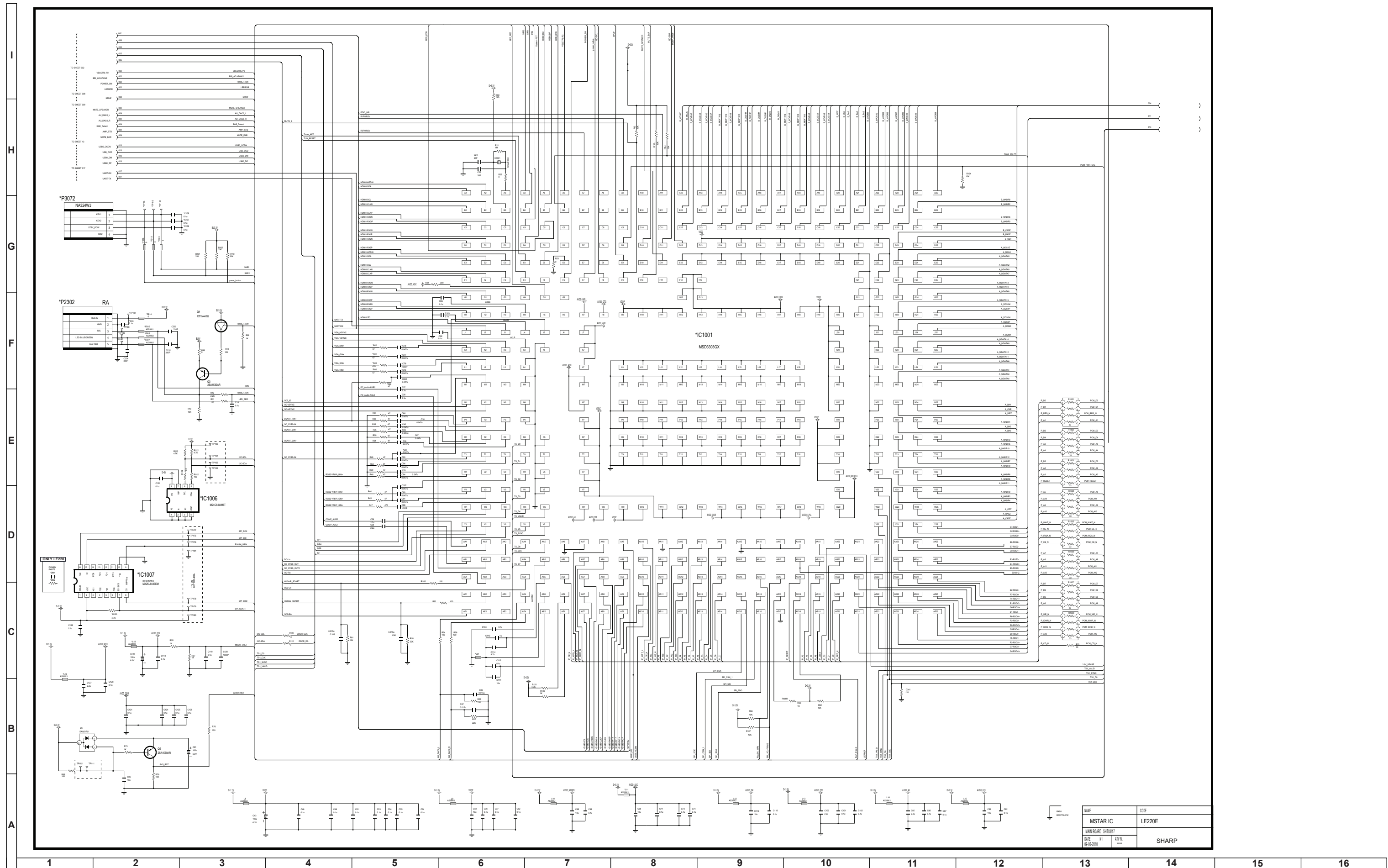


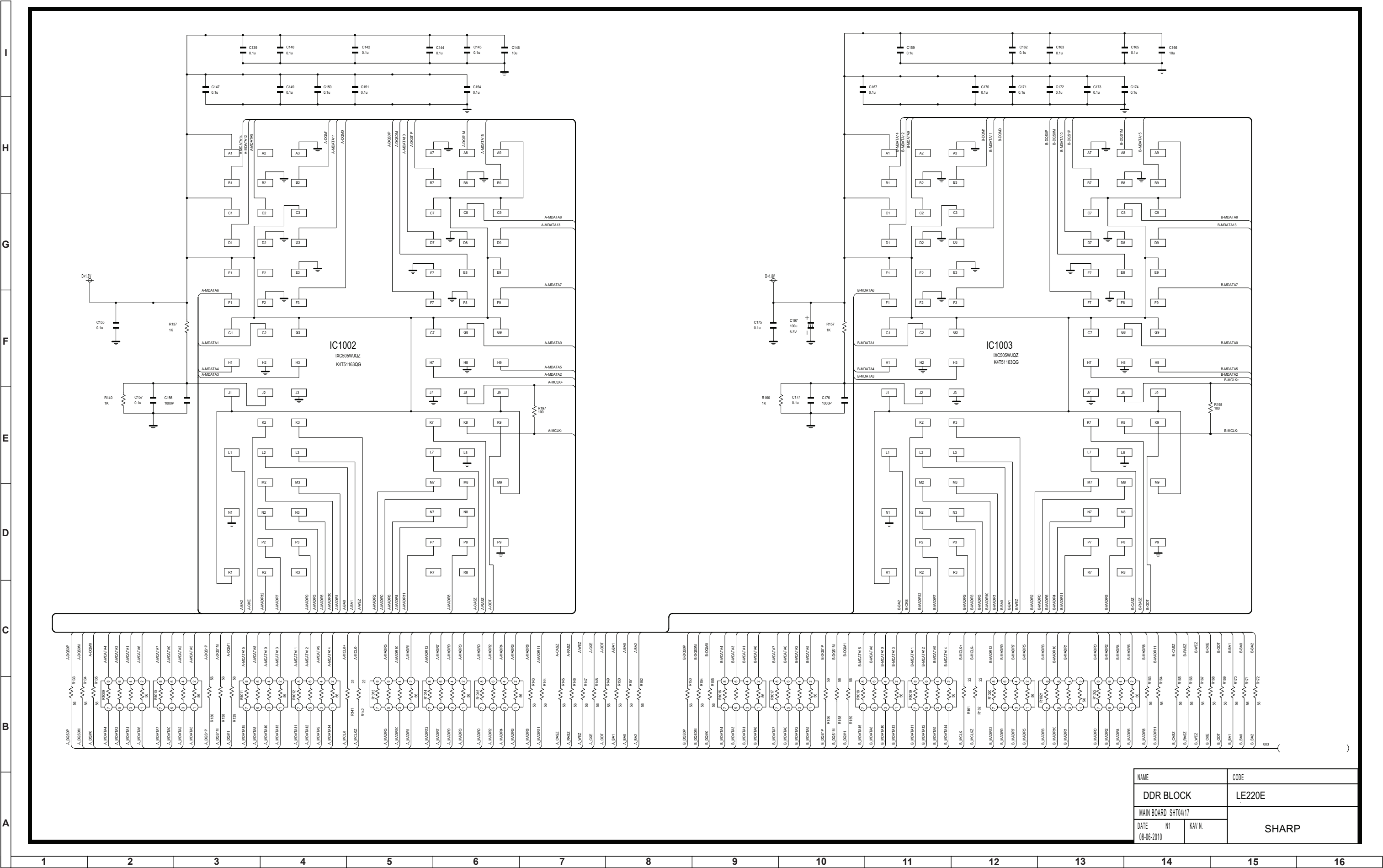
Main Unit Diagram 1/14 (System Power) DUNTKF639WE



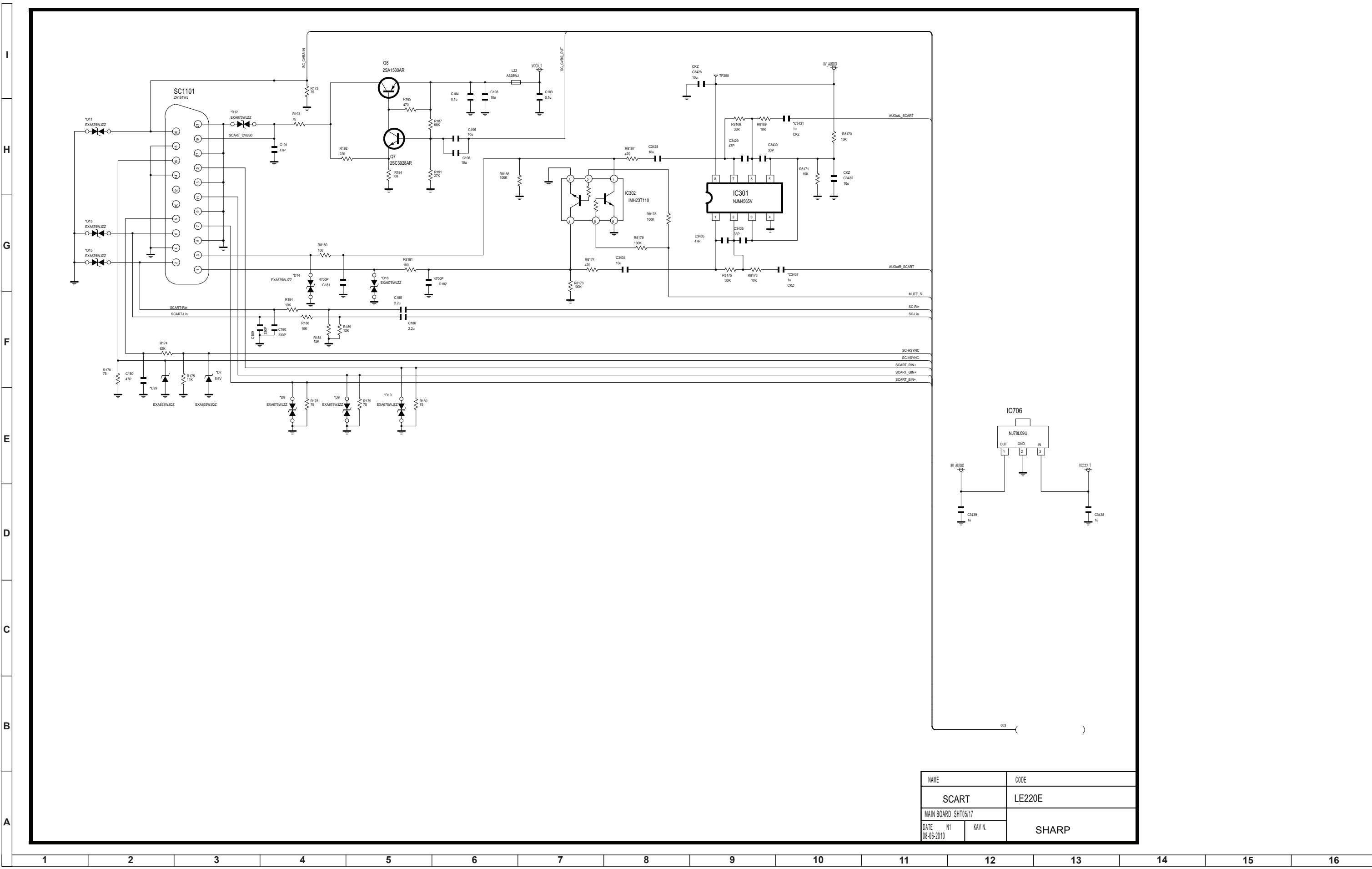
| NAME                |        | CODE   |
|---------------------|--------|--------|
| System Power        |        | LE220E |
| MAIN BOARD SHT02/17 |        | SHARP  |
| DATE                | N1     |        |
| 09-06-2010          | ATV N. | *****  |

# Main Unit Diagram 2/14 (MSTAR IC) DUNTKF639WE

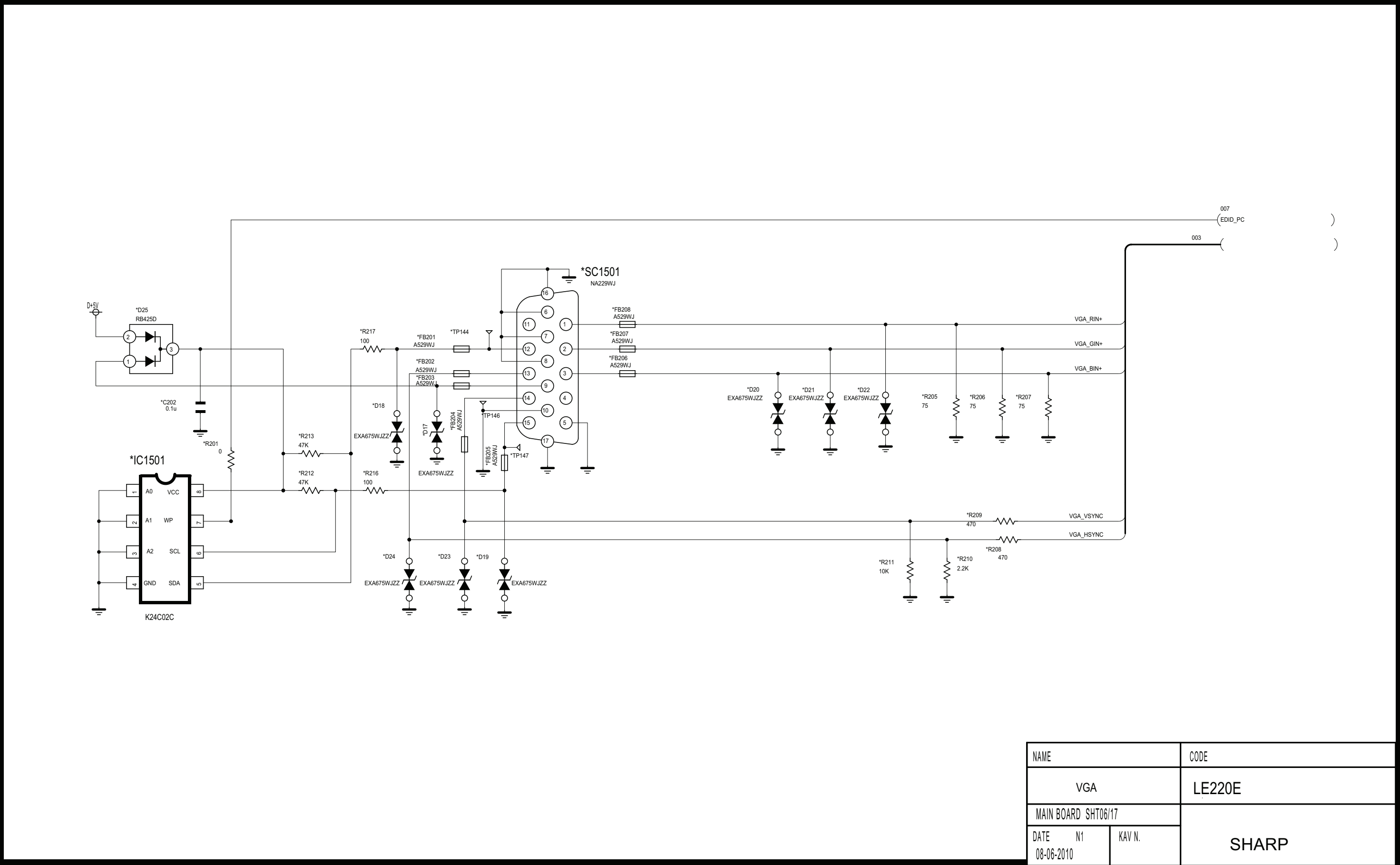




Main Unit Diagram 4/14 (SCART) DUNTKF639WE



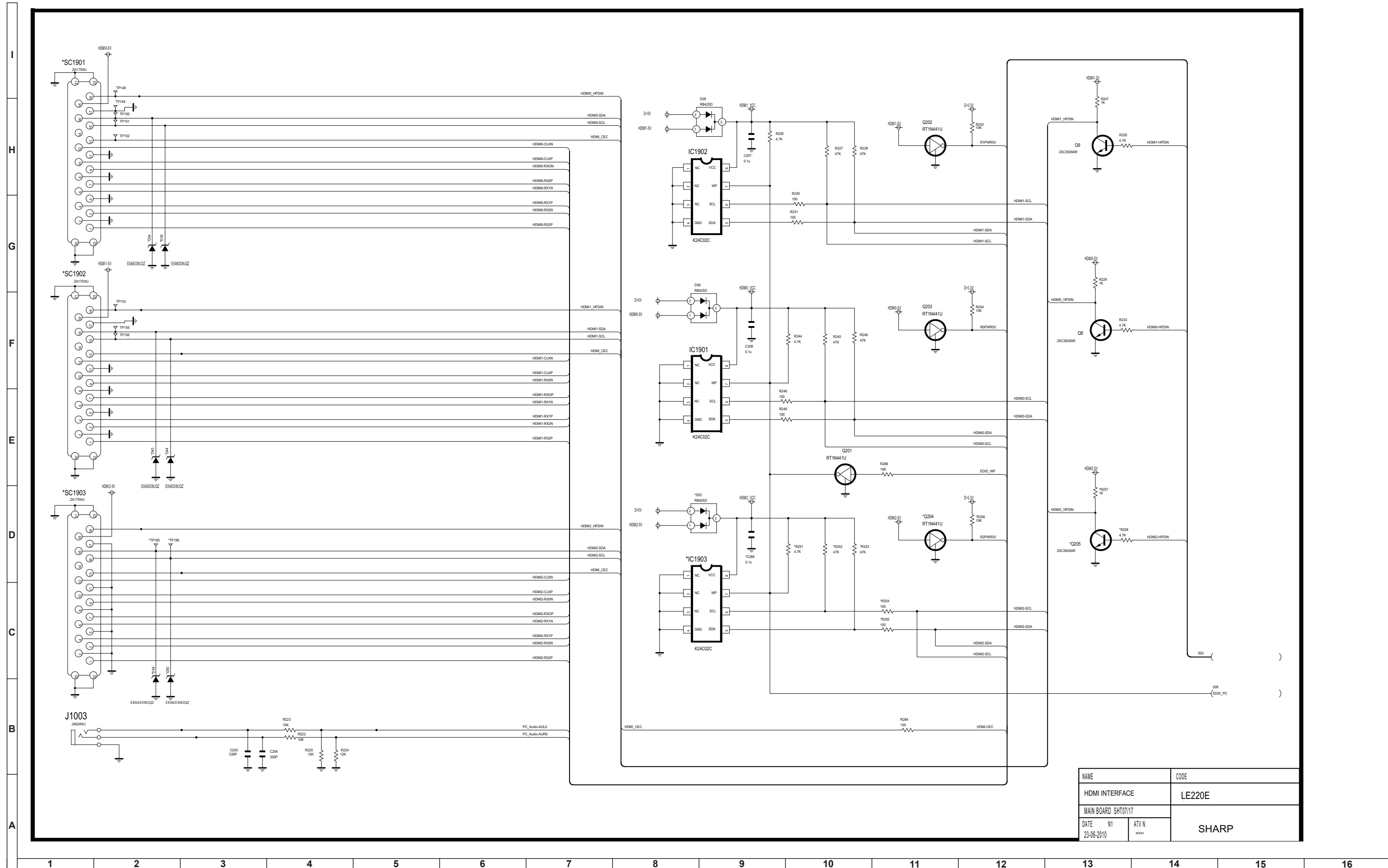
I  
  
  
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D  
  
  
C  
  
  
B  
  
  
A

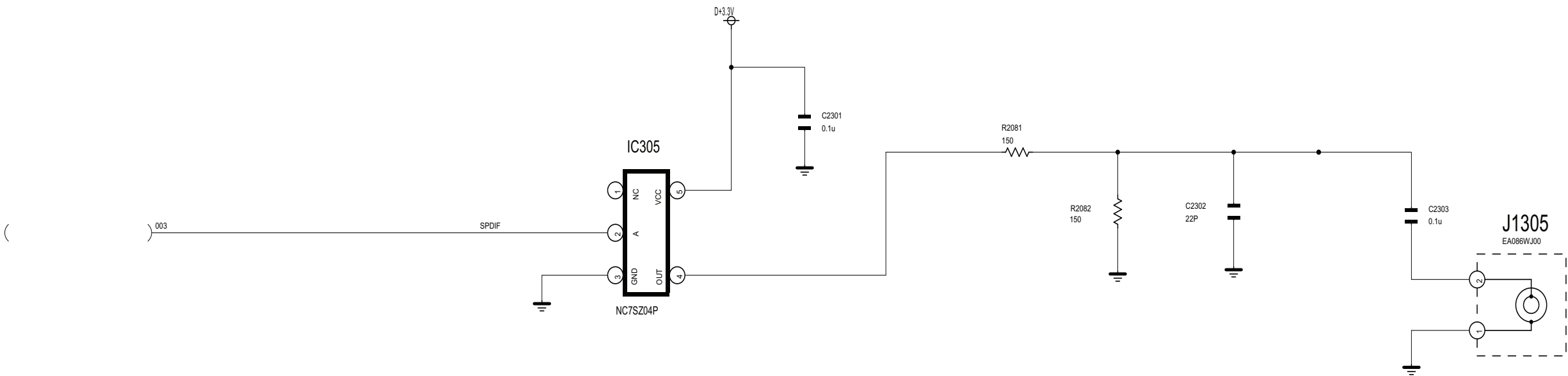


|                       |        |        |  |
|-----------------------|--------|--------|--|
| NAME                  |        | CODE   |  |
| VGA                   |        | LE220E |  |
| MAIN BOARD SHT06/17   |        | SHARP  |  |
| DATE N1<br>08-06-2010 | KAV N. |        |  |



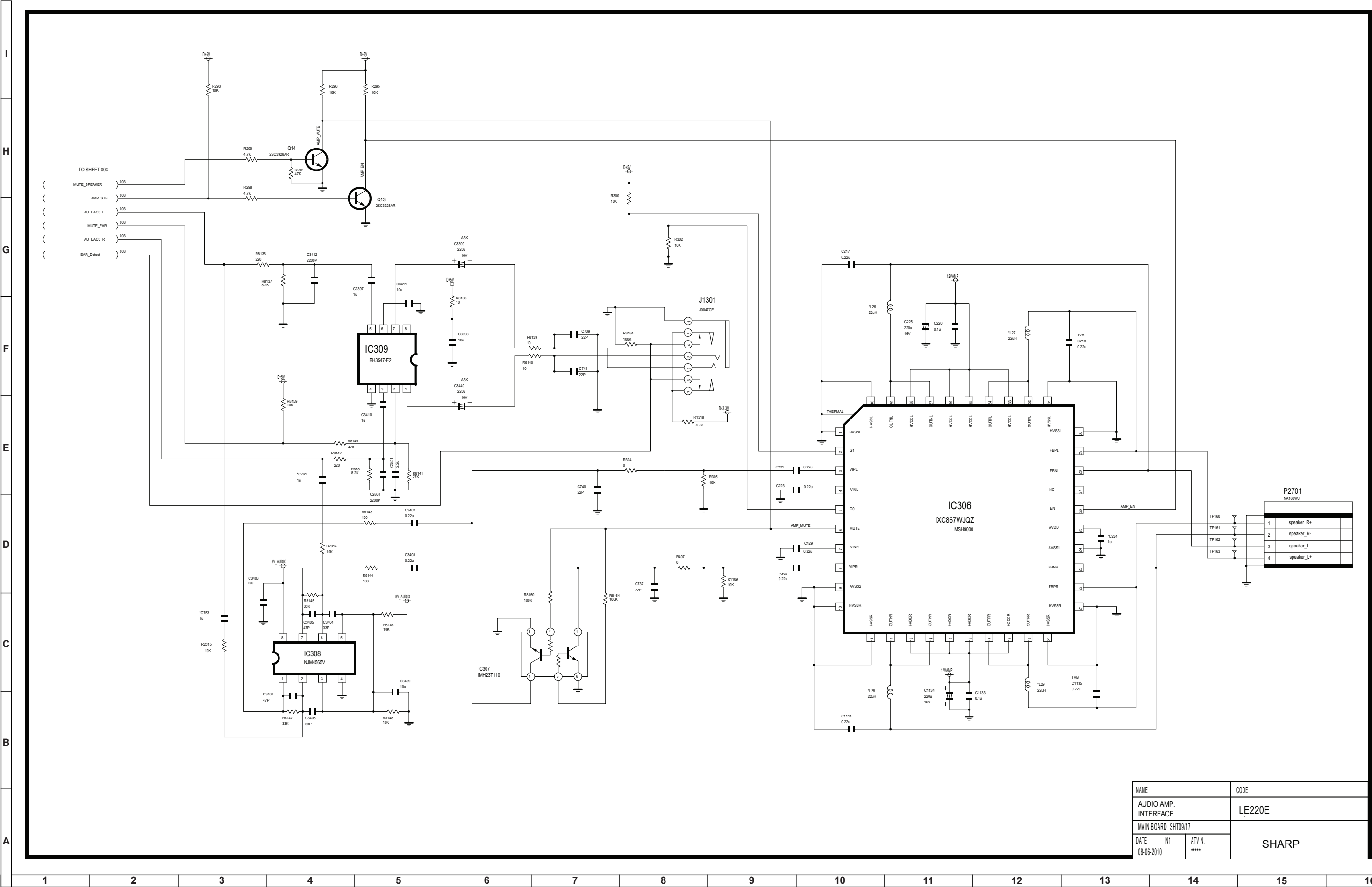
## Main Unit Diagram 6/14 (HDMI INTERFACE) DUNTKF639WE



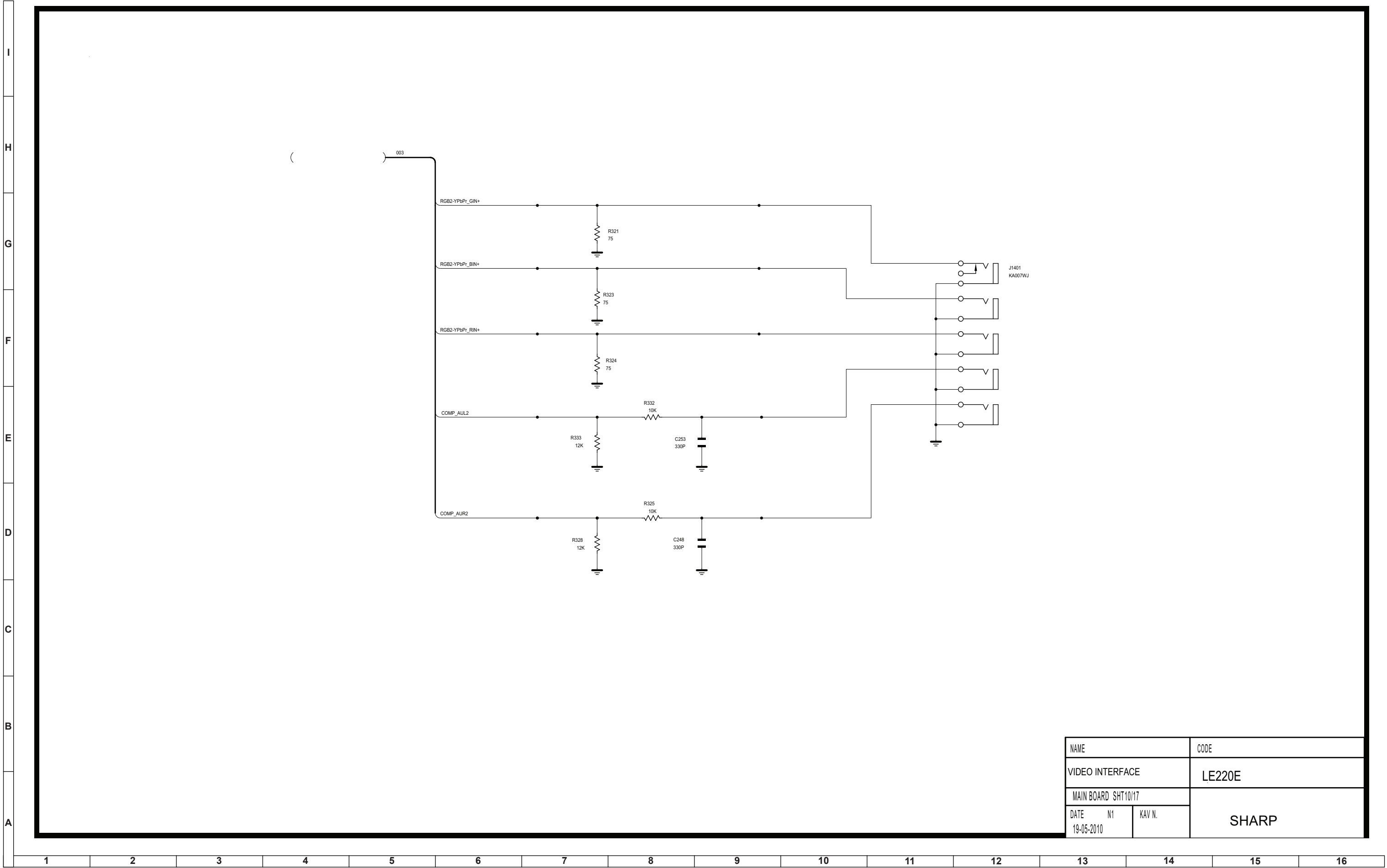


|                     |              |        |
|---------------------|--------------|--------|
| NAME                |              | CODE   |
| AUDIO INTERFACE     |              | LE220E |
| MAIN BOARD SHT08/17 |              | SHARP  |
| DATE<br>19-05-2010  | N1<br>KAV N. |        |

## Main Unit Diagram 8/14 (AUDIO AMP. INTERFACE) DUNTKF639WE

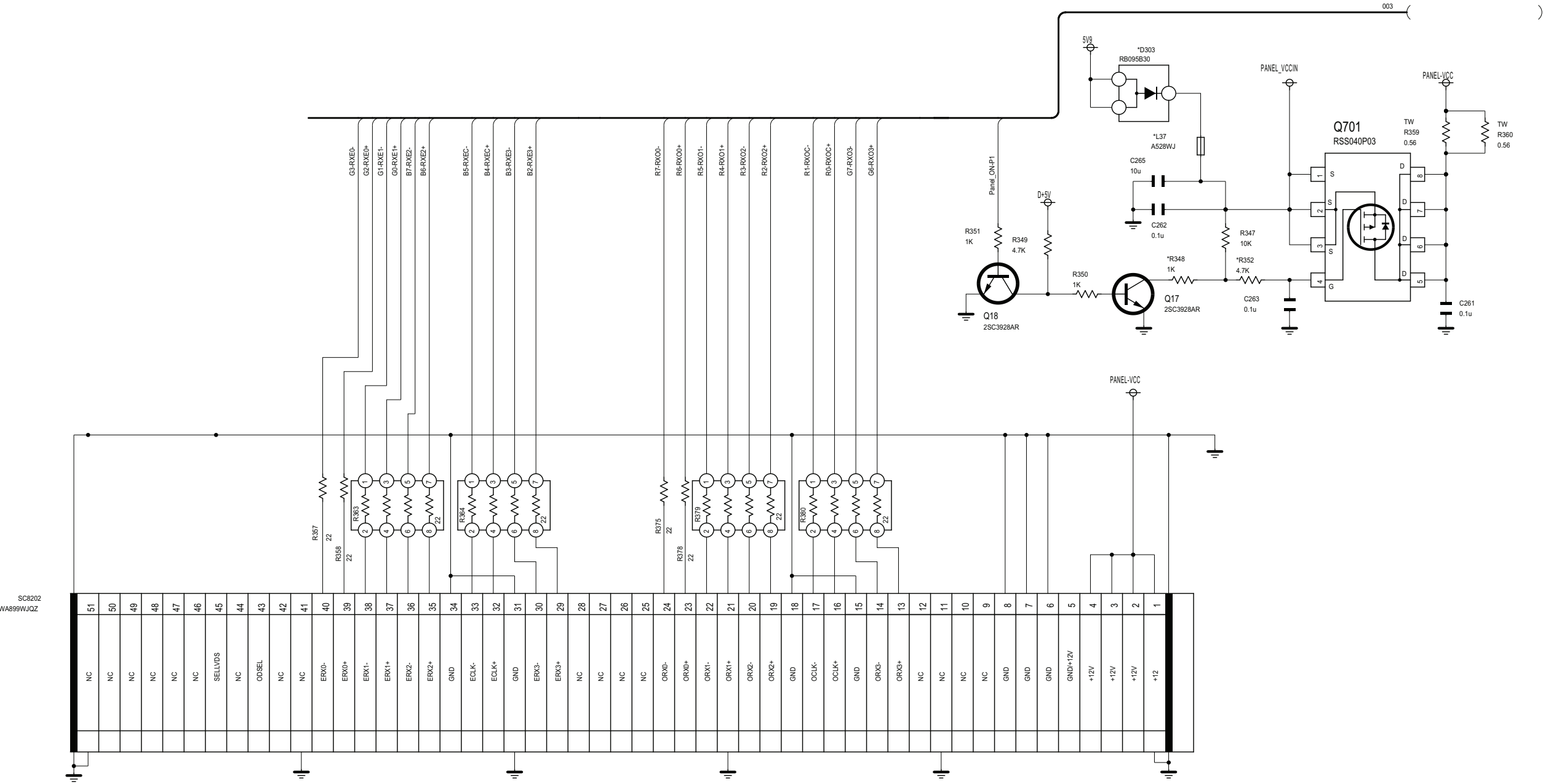


Main Unit Diagram 9/14 (VIDEO INTERFACE) DUNTKF639WE



|                     |    |        |  |
|---------------------|----|--------|--|
| NAME                |    | CODE   |  |
| VIDEO INTERFACE     |    | LE220E |  |
| MAIN BOARD SHT10/17 |    | SHARP  |  |
| DATE                | N1 |        |  |
| 19-05-2010          |    | KAV N. |  |

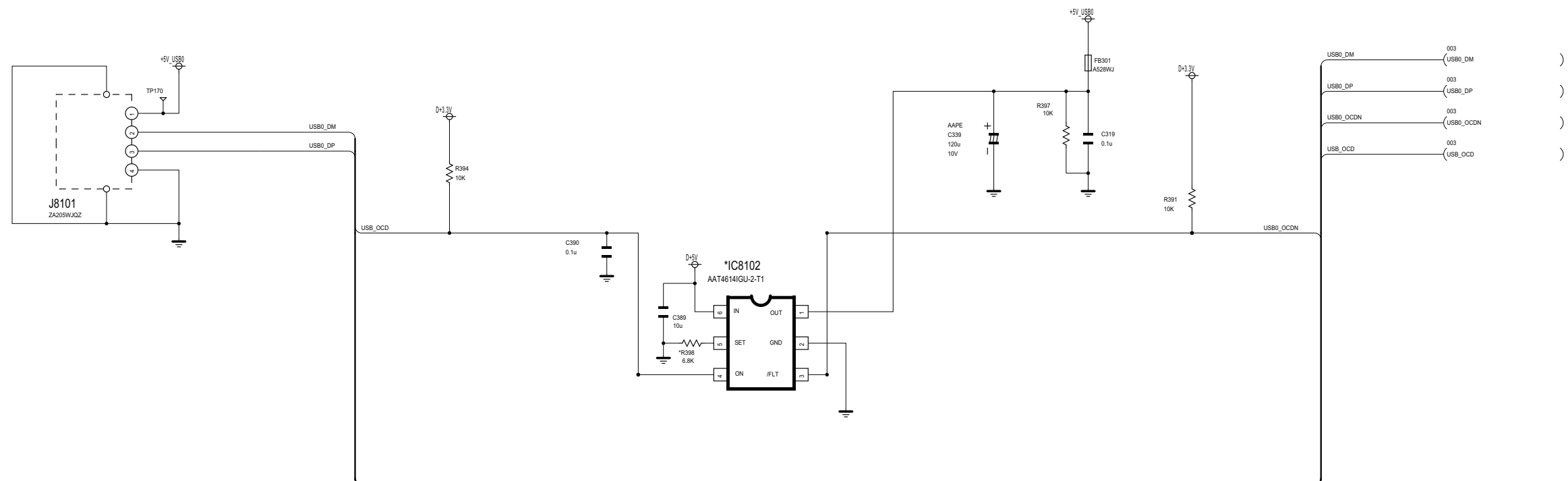
Main Unit Diagram 10/14 (PANEL INTERFACE) DUNTKF639WE



|                       |        |        |
|-----------------------|--------|--------|
| NAME                  |        | CODE   |
| PANEL INTERFACE       |        | LE220E |
| MAIN BOARD SHT11/17   |        | SHARP  |
| DATE N1<br>09-07-2010 | ATV N. |        |



## Main Unit Diagram 12/14 (USB) DUNTKF639WE

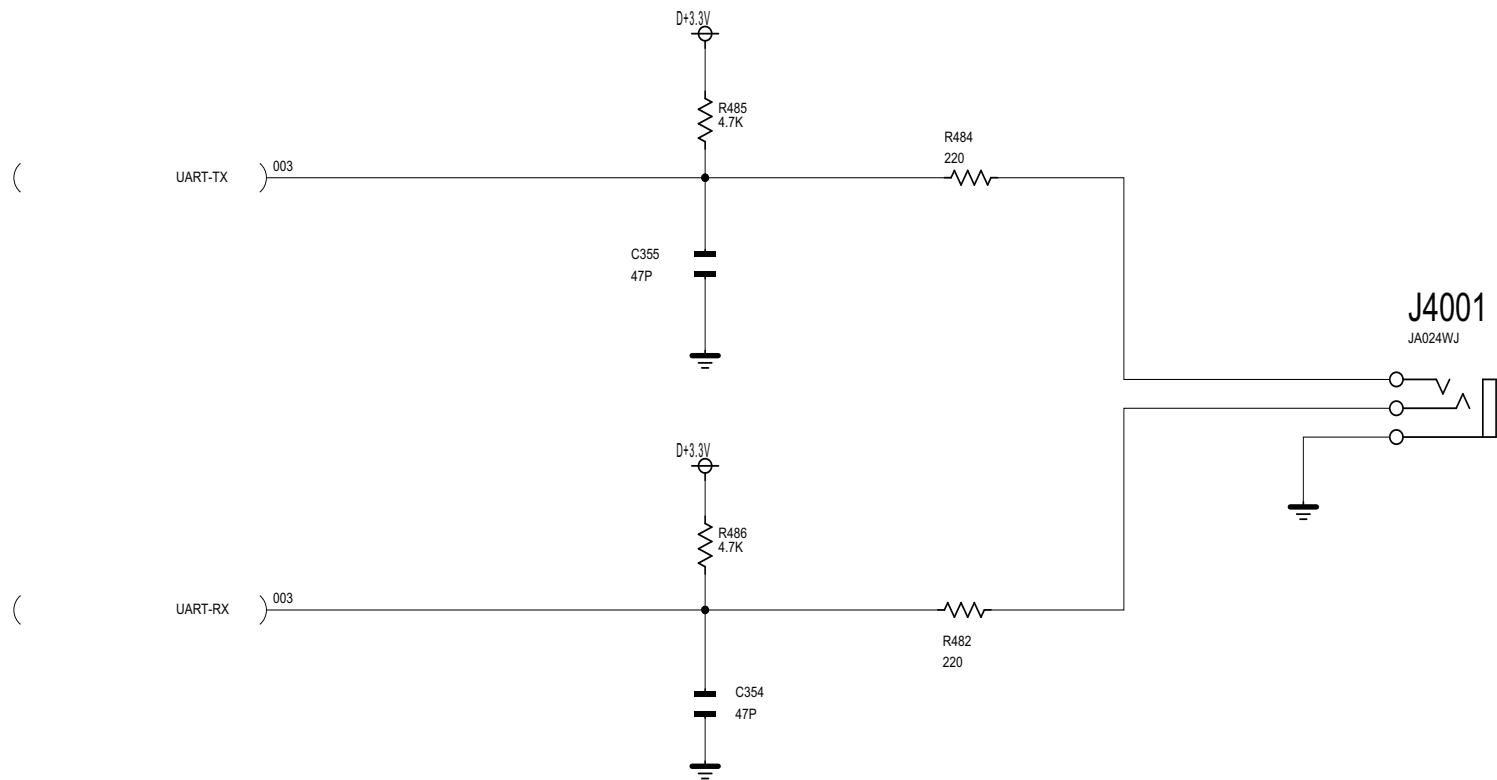


|                       |        |        |
|-----------------------|--------|--------|
| NAME                  |        | CODE   |
| U S B                 |        | LE220E |
| MAIN BOARD SHT13/17   |        | SHARP  |
| DATE N1<br>08-06-2010 | KAV N. |        |



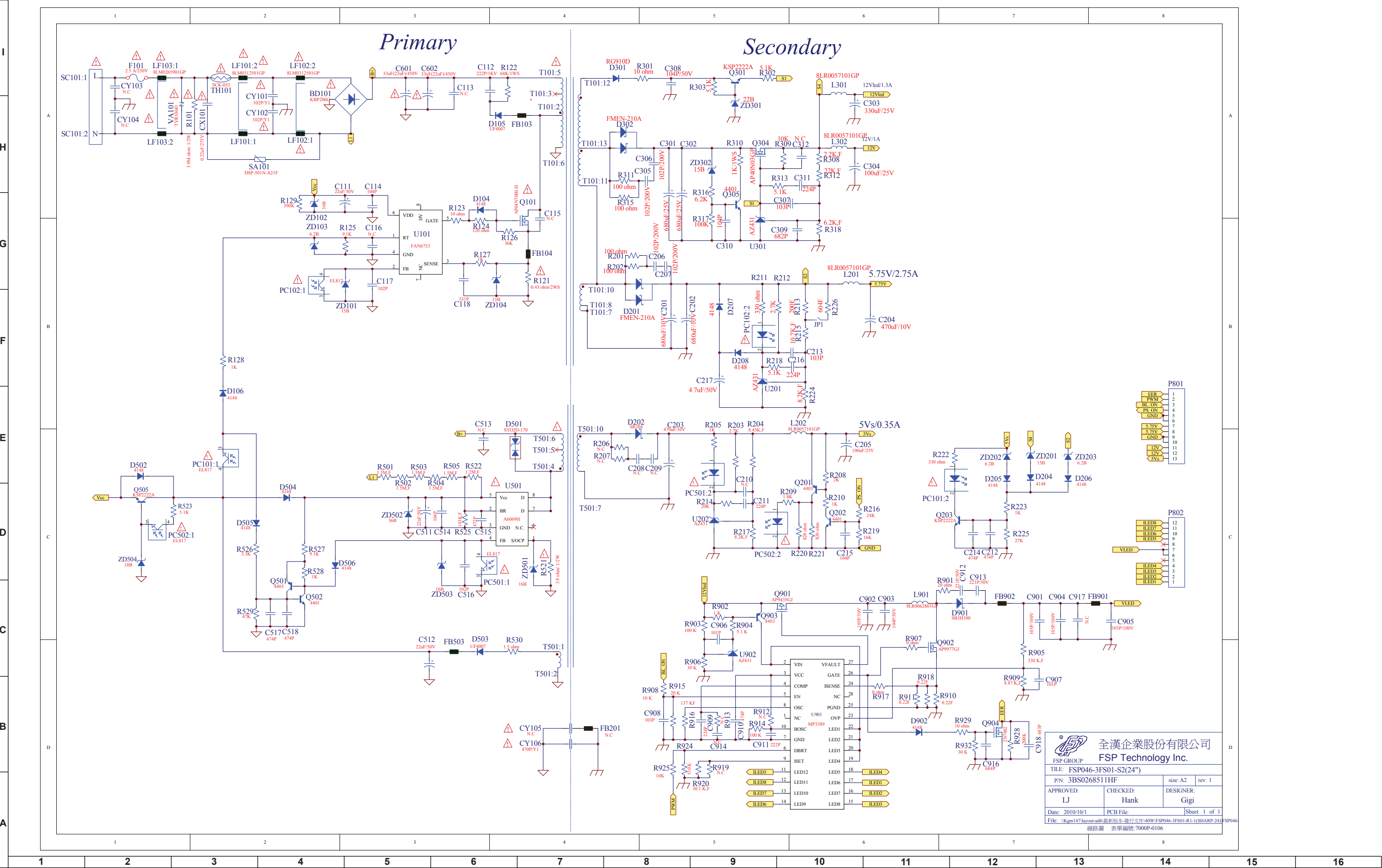


Main Unit Diagram 14/14 (RS232) DUNTKF639WE



| NAME                |              | CODE   |
|---------------------|--------------|--------|
| RS232               |              | LE220E |
| MAIN BOARD SHT17/17 |              | SHARP  |
| DATE<br>19-05-2010  | N1<br>KAV N. |        |

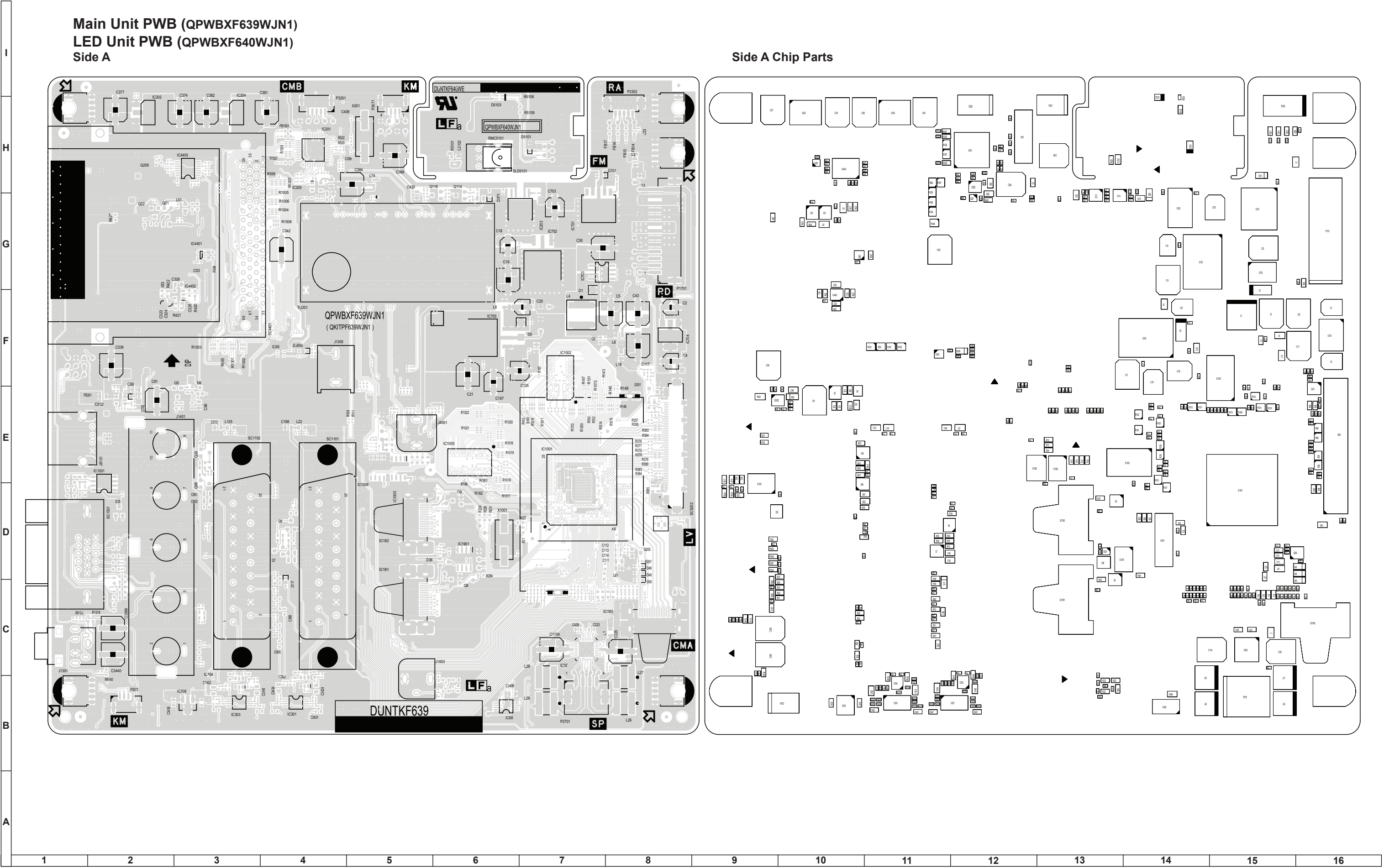
Power Supply Diagram RDENCA412WJQZ



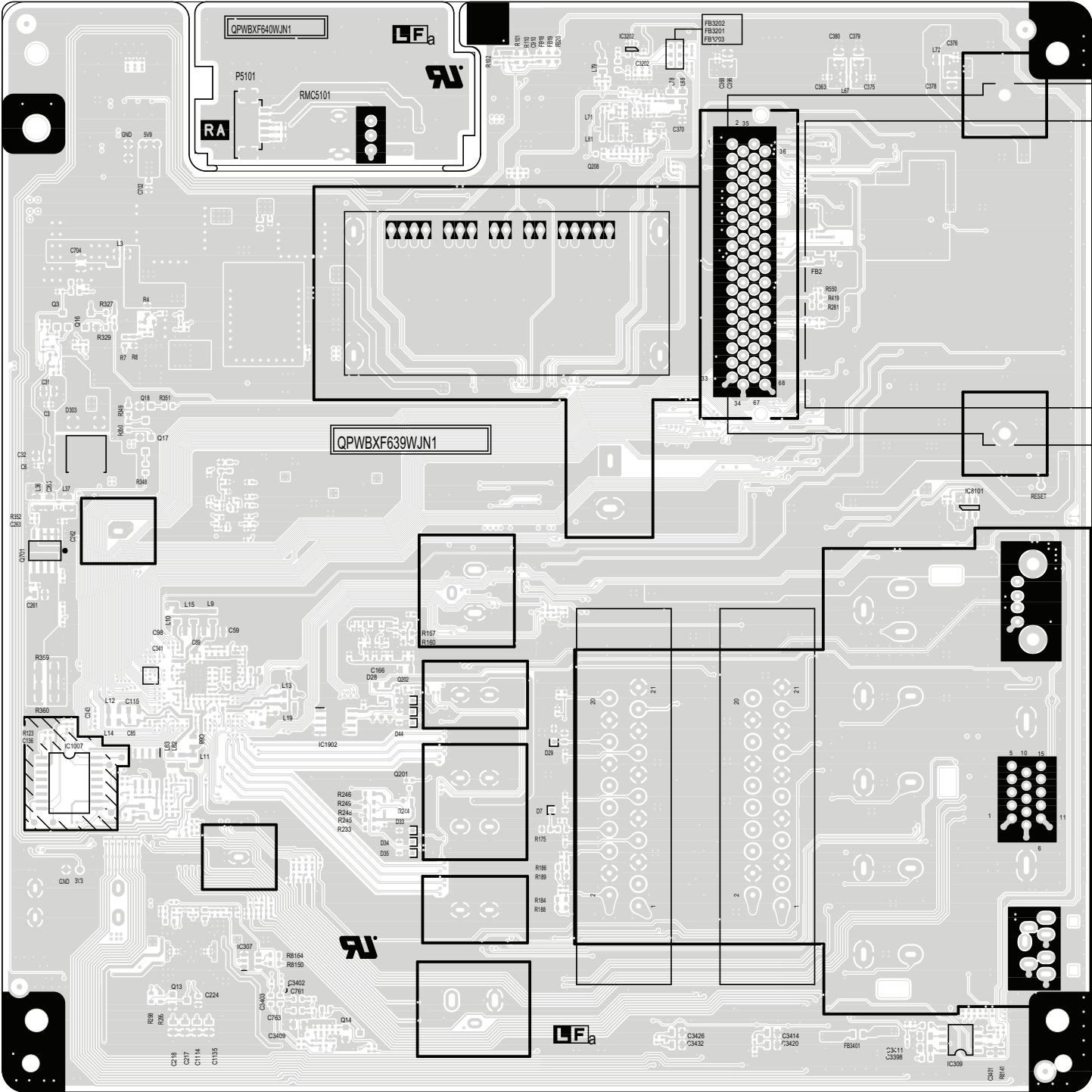
PRINTED WIRING BOARD

Main Unit PWB (QPWBOXF639WJN1)  
LED Unit PWB (QPWBOXF640WJN1)  
Side A

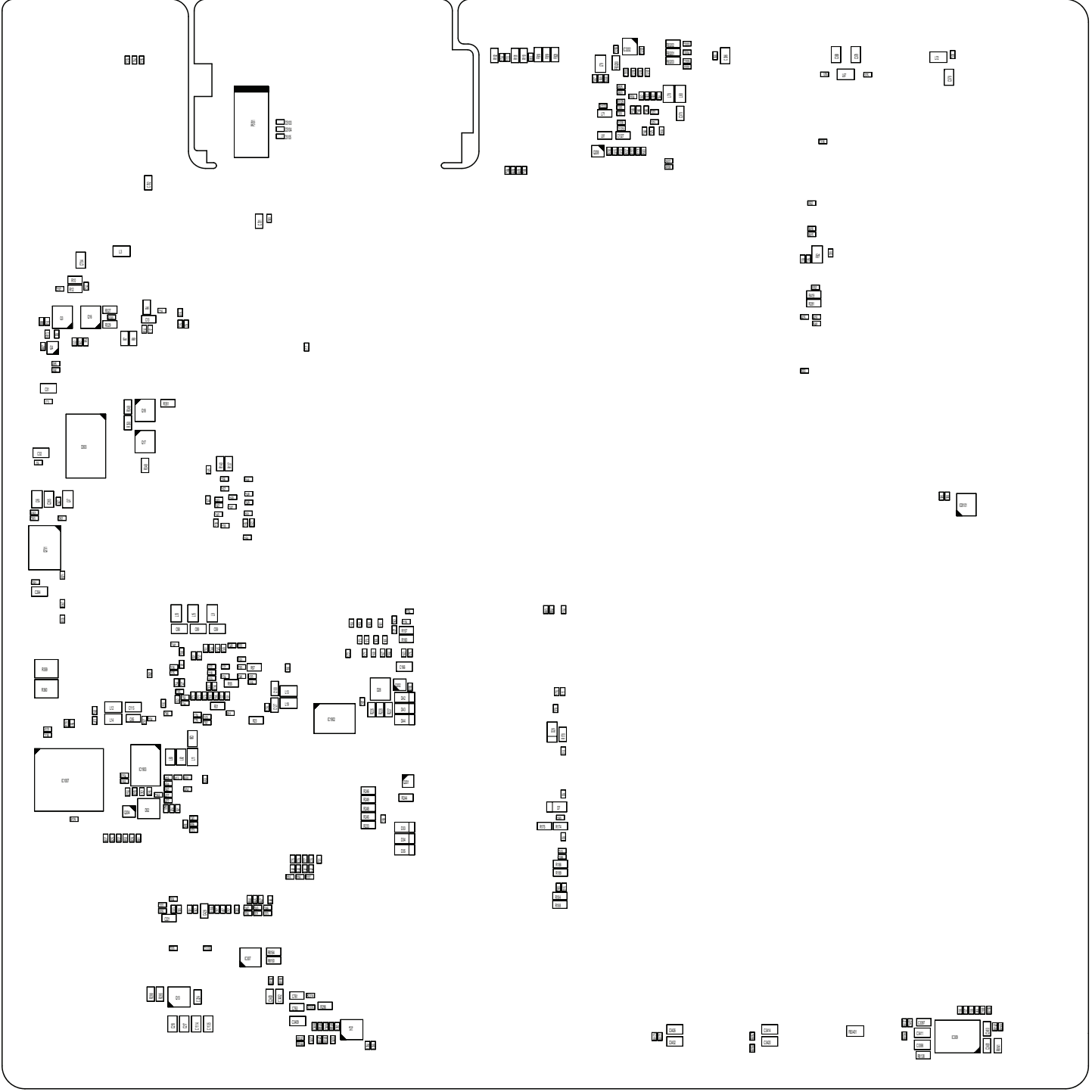
Side A Chip Parts



Main Unit PWB (QPWBXF639WJN1)  
LED Unit PWB (QPWBXF640WJN1)  
Side B



Side B Chip Parts

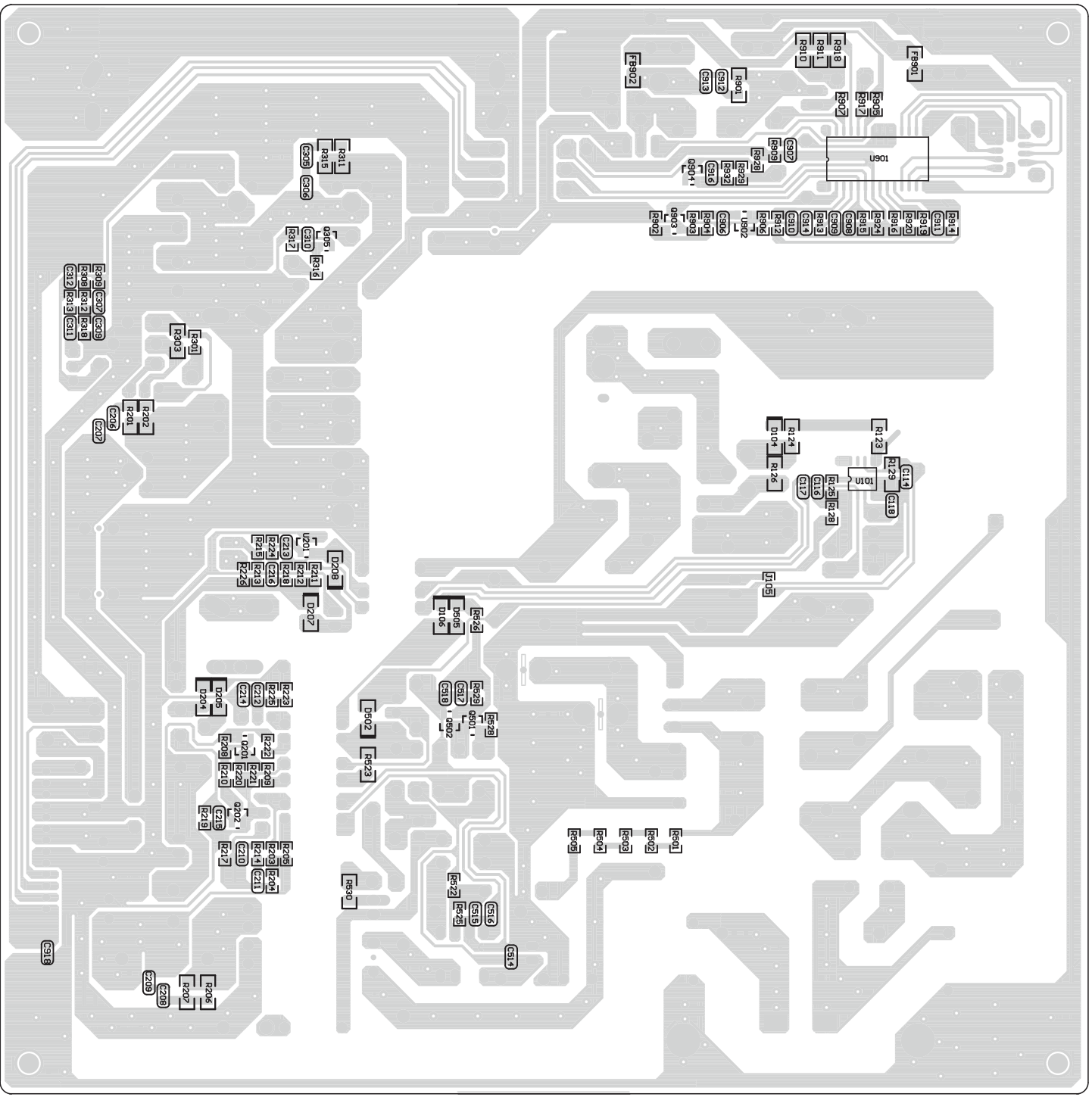
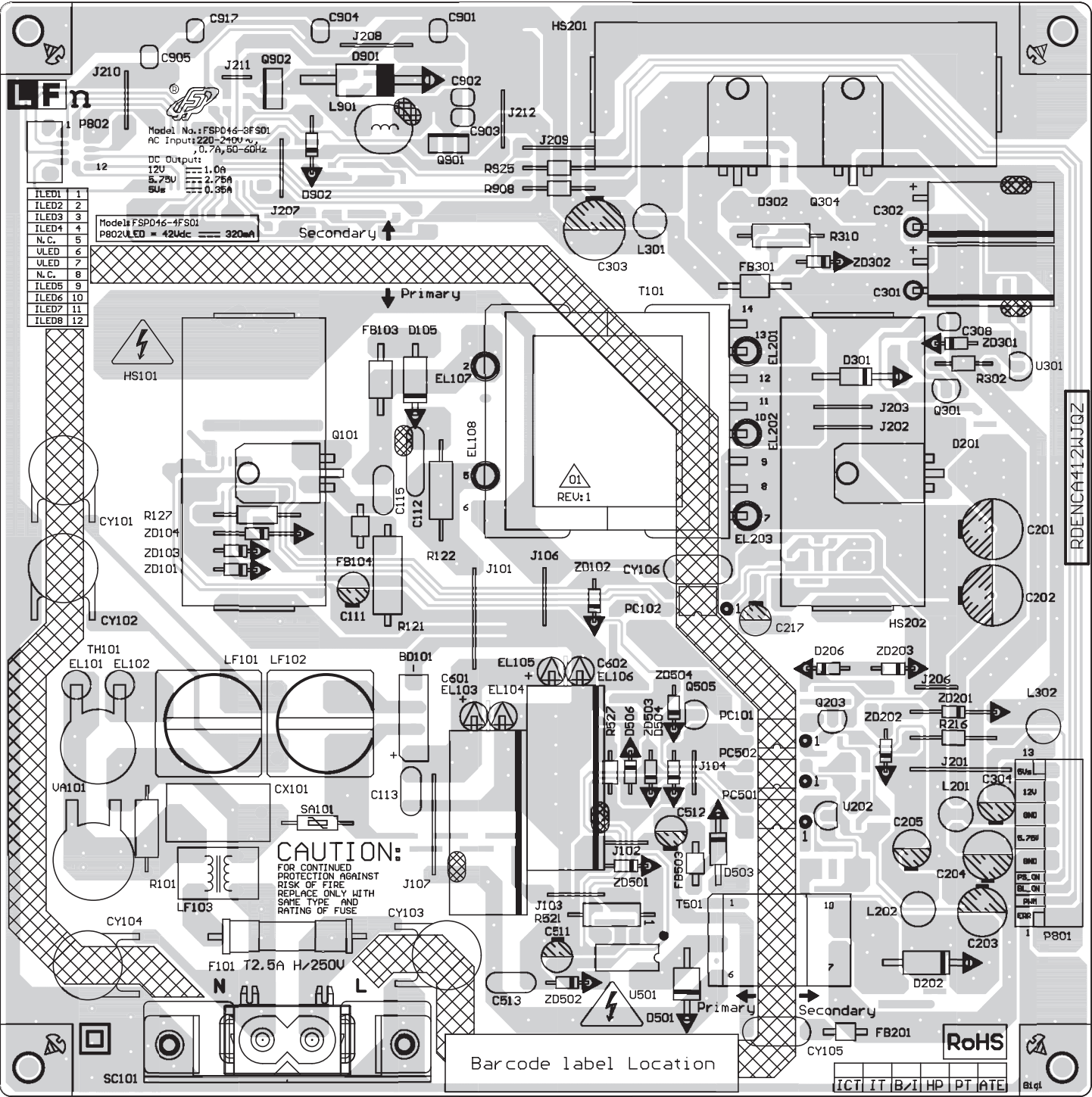




Power Unit PWB RDENCA412WJQZ

Power Unit, Side A

Power Unit, Side B



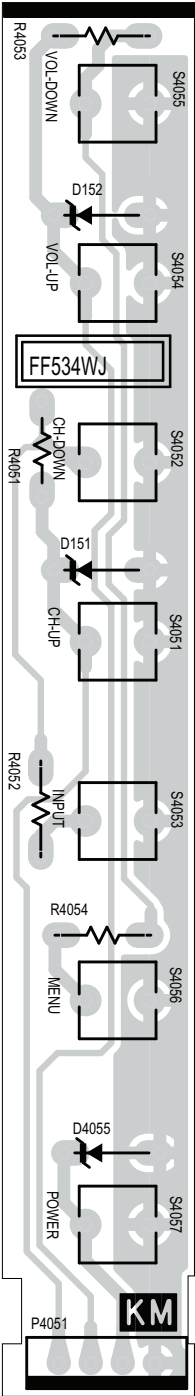
KEY Unit PWB (QPWBFF534WJ)

|   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| I |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
| H |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
| G |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
| F |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
| E |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
| D |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
| C |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
| B |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
| A |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

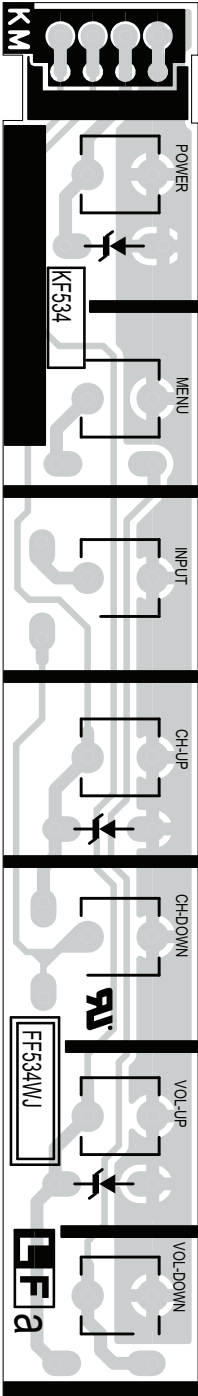
KEY Unit, Side A

KEY Unit, Side B

KEY Unit, Side A



KEY Unit, Side B



## LC24LE210/220E PARTS LISTING

## REPLACEMENT PARTS

Replacement parts which have special safety characteristics are identified in this manual.  
Electrical components having such features are identified by in the Replacement Parts Listing.

The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended is not permitted.  
Replacement parts not shown in this service manual may create shock fire, or other hazards.

## HOW TO ORDER REPLACEMENT PARTS

To have your order completed promptly and correctly please supply the following information.

- |                 |             |             |
|-----------------|-------------|-------------|
| 1. MODEL NUMBER | 2. REF. NO. | 3. PART NO. |
| 4. DESCRIPTION  | 5. CODE     | 6. QUANTITY |

| MARK *: SPARE PARTS   |                | DELIVERY SECTION                         |  |         |    |    |
|---|----------------|--|--|---------|----|----|
| REF NO.   | PARTS          | DESCRIPTION                              | * SN CODE                                      | EX CODE |    |    |
| LE210E/LE220E LCD PANEL   |                |  |  |         |    |    |
| NOTE : THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY |                |  |  |         |    |    |
|   | RILK236D3LF21Y | PANEL 24" 50Hz FHD CMI LED M236H3-LA2    | S  | BS      | CM |    |
| LE210E/LE220E PRINTED WIRING BOARDS   |                |  |  |         |    |    |
|   | DSETUF639WE06  | MAIN/LED UNIT 24LE210E                   | S  | BE      | AT |    |
|   | DSETUF639WE07  | MAIN/LED UNIT 24LE220E                   | S  | BE      | AT |    |
|   | DSETUF639WE10  | MAIN/LED UNIT 24LE210EFCB                | S  | BE      | AT |    |
|   | DUNTKEF534FM02 | ADJUST KEY LE210-220E                    | S  | --      | -- |    |
| A   | RDENCA412WJQZ  | POWER WITH LED DRIVER 24" (FSP046-3F501) | S  | AV      | BG |    |
| LE210E/LE220E DUNTKEF639FM**  |                |  |  |         |    |    |
| MAIN Unit   |                |  |  |         |    |    |
| INTEGRATED CIRCUITS   |                |  |  |         |    |    |
|   | IC 0201        | RH-IXC868WJZZQ                           | IC COFDM MSB1220 LQFP 48 LE210E                | S       | AF | AQ |
|   |                | RH-IXD148WJZZQ                           | IC COFDM MSB1222-LF LQFP 48 LE220E             | S       | AG | AS |
|   | IC 0202        | RH-IXC881WJZZY                           | IC APL1117-33VC-TR6                            | S       | AA | AB |
|   | IC 0203        | VHIBA5080WP-1Y                           | IC BA5080COWFP-E2                              | S       | AA | AD |
|   | IC 0204        | RH-IXD112WJZZY                           | CI APL1117-12VC-TR6 SOT-223 ANPEC              | S       | AA | AB |
|   | IC 0301        | VHINJM4565V-1Y                           | IC NJ7M4565V-TE1                               | S       | AA | AB |
|   | IC 0302        | VSIMH23T110-1Y                           | TRT IWMH23T110                                 | S       | AA | AB |
|   | IC 0305        | VHINC7SZ04P-1Y                           | IC NC7SZ04P5X                                  | S       | AA | AA |
|   | IC 0306        | RH-IXC867WJQZQ                           | IC MSH9000-LF AUDIO OUT MSTAR QFN40            | S       | AD | AM |
|   | IC 0307        | VSIMH23T110-1Y                           | TRT IWMH23T110                                 | S       | AA | AB |
|   | IC 0308        | VHINJM4565V-1Y                           | IC NJ7M4565V-TE1                               | S       | AA | AB |
|   | IC 0309        | VHIBH3547F--1L                           | IC BH3547-E2                                   | S       | AA | AB |
|   | IC 0701        | RH-IXC913WJZZY                           | ICBA50DB0WHFP HPR5 ROHM                        | S       | AB | AF |
|   | IC 0702        | RH-IXC882WJZZY                           | IC APL1084-336C-TR6                            | S       | AA | AD |
|   | IC 0703        | VHILV5893M-1Y                            | IC LV5893M-TE-L-E                              | S       | AA | AD |
|   | IC 0704        | RH-IXC881WJZZY                           | IC APL1117-33VC-TR6                            | S       | AA | AB |
|   | IC 0705        | RH-IXC883WJZZY                           | IC AP1084K18-L13 TO-263AB                      | S       | AA | AD |
|   | IC 0706        | VHINJ78L09U-1Y                           | IC NJ7M78L09UA-TE1                             | S       | AA | AC |
|   | IC 1001        | RH-IXC869WJQZQ                           | IC MSD33036X-LF-T1 VIDEO-AUDIO PROCESSOR       | S       | AT | BE |
|   | IC 1002        | RH-IXD228WJZZQ                           | IC K4T51163Q1-HCF7 SAMSUNG                     | S       | AF | AQ |
|   | IC 1003        | RH-IXD228WJZZQ                           | IC K4T51163Q1-HCF7 SAMSUNG                     | S       | AF | AQ |
|   | IC 1006        | RH-IXD261WJZZY                           | RH-IXC986WJZZY AND DATA LC32LE2x0E_HDCP_KEY    | S       | AC | AH |
| *   | IC 1007        | RH-IXD274WJZZY                           | RH-IXD012WJZZY AND 24LE210_v1J2_PANEL_CMI      | S       | -- | -- |
|   | IC 1501        | RH-IXD239WJZZY                           | RH-IXD080WJZZY AND DATA LC32LE2x0E_PC_EDID     | S       | AA | AB |
|   | IC 1901        | RH-IXD236WJZZY                           | RH-IXD080WJZZY AND DATA LC32LE2x0E_HDMI_1_EDID | S       | AA | AB |
|   | IC 1902        | RH-IXD237WJZZY                           | RH-IXD080WJZZY AND DATA LC32LE2x0E_HDMI_2_EDID | S       | AA | AB |
|   | IC 1903        | RH-IXD238WJZZY                           | RH-IXD080WJZZY AND DATA LC32LE2x0E_HDMI_3_EDID | S       | AA | AB |
|   | IC 4401        | VHITC7SH17U-1Y                           | IC TC7SH17FU(T8B5L)                            | S       | AA | AA |
|   | IC 4402        | VHIAHC1632V-1Y                           | IC 74AHC1632GV125                              | S       | AA | AA |
|   | IC 4403        | RH-IXD049WJZZY                           | IC T74LCK126FT(EK2,M) TOSHIBA                  | S       | AA | AB |
|   | IC 8102        | RH-IXD187WJZZY                           | CI AAT4614IGU-2-T1 ANALOGIC TECH               | S       | AA | AC |
| TRANSISTORS   |                |  |  |         |    |    |
|   | Q 0003         | VS25A1530AR-1Y                           | TRT 5A1530A-T12-1R MITSUBISHI                  | S       | AA | AA |
|   | Q 0004         | VSRTIN44IU/-1Y                           | TRT RTIN44IU-T111-1                            | S       | AA | AA |
|   | Q 0005         | VS25A1530AR-1Y                           | TRT 5A1530A-T12-1R MITSUBISHI                  | S       | AA | AA |
|   | Q 0006         | VS25A1530AR-1Y                           | TRT 5A1530A-T12-1R MITSUBISHI                  | S       | AA | AA |
|   | Q 0007         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0008         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0009         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0013         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0014         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0016         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0017         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0018         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0021         | VSRTRO20P02-1Y                           | TRT RTRO20P02-L                                | S       | AA | AC |
|   | Q 0022         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0114         | VS25A1530AR-1Y                           | TRT 5A1530A-T12-1R MITSUBISHI                  | S       | AA | AA |
|   | Q 0119         | VS25C3928AR-1Y                           | TRT 25C3928AR-T12-1R MITSUBISHI                | S       | AA | AA |
|   | Q 0201         | VSRTIN44IU/-1Y                           | TRT RTIN44IU-T111-1                            | S       | AA | AA |

\* For LE220 models it is not possible to replace IC1007. Replace the full Main Unit.

| REF No.           | PARTS          | DESCRIPTION                         | * SN CODE | EX CODE |
|-------------------|----------------|-------------------------------------|-----------|---------|
| Q 0202            | VSRTIN44IU/-1Y | TRT RTIN44IU-T111-1                 | S         | AA      |
| Q 0203            | VSRTIN44IU/-1Y | TRT RTIN44IU-T111-1                 | S         | AA      |
| Q 0204            | VSRTIN44IU/-1Y | TRT RTIN44IU-T111-1                 | S         | AA      |
| Q 0205            | VS25C3928AR-1Y | TRT 25C3928AR-T12-1R MITSUBISHI     | S         | AA      |
| Q 0208            | VSRTIN44IU/-1Y | TRT RTIN44IU-T111-1                 | S         | AA      |
| Q 0209            | VSRTIN44IU/-1Y | TRT RTIN44IU-T111-1                 | S         | AA      |
| Q 0701            | VSRS5040P03-1Y | TRT RSS5040P03TB                    | S         | AA      |
| DIODES            |                |                                     |           |         |
| D 0001            | VHDSMA833L-1Y  | DIODE SMA833L-RTK/P                 | S         | AA      |
| D 0006            | VHDDAN217U/-1Y | DIODE DAN217T106                    | S         | AA      |
| D 0007            | RH-EXA633WJQZY | ZENER DIODE RKZ5.6B2K6              | S         | AA      |
| D 0008            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0009            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0010            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0011            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0012            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0013            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0014            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0015            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0016            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0017            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0018            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0019            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0020            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0021            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0022            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0023            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0024            | RH-EXA675WJZZY | ZENER DIODE CDS2C166TH ESD 16V 0402 | S         | AA      |
| D 0025            | VHDB8425D/-1Y  | DIODE RB425DT146                    | S         | AA      |
| D 0028            | VHDB8425D/-1Y  | DIODE RB425DT146                    | S         | AA      |
| D 0029            | RH-EXA633WJQZY | ZENER DIODE RKZ5.6B2K6              | S         | AA      |
| D 0034            | RH-EXA633WJQZY | ZENER DIODE RKZ5.6B2K6              | S         | AA      |
| D 0035            | RH-EXA633WJQZY | ZENER DIODE RKZ5.6B2K6              | S         | AA      |
| D 0036            | VHDB8425D/-1Y  | DIODE RB425DT146                    | S         | AA      |
| D 0043            | RH-EXA633WJQZY | ZENER DIODE RKZ5.6B2K6              | S         | AA      |
| D 0044            | RH-EXA633WJQZY | ZENER DIODE RKZ5.6B2K6              | S         | AA      |
| D 0049            | RH-EXA633WJQZY | ZENER DIODE RKZ5.6B2K6              | S         | AA      |
| D 0050            | RH-EXA633WJQZY | ZENER DIODE RKZ5.6B2K6              | S         | AA      |
| D 0052            | VHDB8425D/-1Y  | DIODE RB425DT146                    | S         | AA      |
| D 0303            | VHDB8095B30-1Y | DIODE RB095B-30TL                   | S         | AB      |
| D 0701            | VHDSU1191/-1Y  | DIODE HSU119TRF                     | S         | AA      |
| PACKAGED CIRCUITS |                |                                     |           |         |
| X 0201            | RCRSCA224WJZZY | CRYSTAL AT-41CD2-24.000MHz_20_N_NDK | S         | AA      |
| X 1001            | RCRSCA225WJZZY | CRYSTAL AT-41CD2-12.000MHz_20_N_NDK | S         | AA      |
| COILS AND FILTERS |                |                                     |           |         |
| L 0001            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0002            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0003            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0004            | RCILP4762WJQZY | COIL NR8040T330M 33UH 20%           | S         | AA      |
| L 0006            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0008            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0009            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0010            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0012            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0013            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0014            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0015            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0018            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0019            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0022            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0026            | RCILP8016WJQZY | COIL SWPA6045S220                   | S         | AA      |
| L 0027            | RCILP8016WJQZY | COIL SWPA6045S220                   | S         | AA      |
| L 0028            | RCILP8016WJQZY | COIL SWPA6045S220                   | S         | AA      |
| L 0029            | RCILP8016WJQZY | COIL SWPA6045S220                   | S         | AA      |
| L 0037            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0051            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0052            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0061            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0062            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0067            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0068            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0071            | RBLN-A529WJZZY | FERRITE MID603M121R-10              | S         | AA      |
| L 0072            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0074            | RBLN-A529WJZZY | FERRITE MID603M121R-10              | S         | AA      |
| L 0078            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0079            | RBLN-A528WJZZY | FERRITE HI0805N600R-10              | S         | AA      |
| L 0081            | RBLN-A529WJZZY | FERRITE MID603M121R-10              | S         | AA      |
| L 0401            | VRS-CZ1JF000JY | RES 0402 0 OHM 5% 1/16W SMD         | S         | AA      |
| TUNER             |                |                                     |           |         |
| TU 0201           | RTUDA065WJQZ   | TUNER TD7W-573D                     | S         | AM      |

| REF No     | PARTS          | DESCRIPTION                           | • SN CODE | EX CODE |
|------------|----------------|---------------------------------------|-----------|---------|
| CAPACITORS |                |                                       |           |         |
| C 0002     | VCEAPF1Q106MY  | ELEC C 100UF 20% 16V                  | S AA      | AA      |
| C 0003     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0004     | VCEAPF1Q106MY  | ELEC C 100UF 20% 16V                  | S AA      | AA      |
| C 0005     | VCEASK1Q1227MY | ELEC C 220UF 20% 16V MVY16VC220MF80   | S AA      | AB      |
| C 0007     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0008     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0009     | VCKY/CY1B105KY | CAPACITOR 6RM398 105K 6.3 (1608)SMD   | S AA      | AA      |
| C 0010     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0012     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0013     | VCKY/CY1B105KY | CAPACITOR 6RM398 105K 6.3 (1608)SMD   | S AA      | AA      |
| C 0014     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0015     | VCKY/Z1CB223KY | CAPACITOR 22NF 16V 10%                | S AA      | AA      |
| C 0016     | VCKY/Z1CB682KY | CAPACITOR 6.8NF 16V 10%               | S AA      | AA      |
| C 0017     | VCKY/Z1CB103KY | CAPACITOR 10NF 16V 10%                | S AA      | AA      |
| C 0018     | VCEAPF1Q106MY  | ELEC C 100UF 20% 16V                  | S AA      | AA      |
| C 0019     | VCEASX0J107MY  | ELEC C 100UF 6.3V MVL6.3VC100MF60E1   | S AA      | AB      |
| C 0020     | VCEAPF1Q106MY  | ELEC C 100UF 20% 16V                  | S AA      | AA      |
| C 0021     | VCEASX0J107MY  | ELEC C 100UF 6.3V MVL6.3VC100MF60E1   | S AA      | AB      |
| C 0022     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0023     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0024     | VCCCZ1H42003Y  | C CERAM 20PF 50V 5%                   | S AA      | AA      |
| C 0025     | VCCCZ1H42003Y  | C CERAM 20PF 50V 5%                   | S AA      | AA      |
| C 0026     | RC-KZA115WJZZY | CERAM C 2.2UF 10V 6RM188B31A225KE33D  | S AA      | AA      |
| C 0027     | RC-KZA115WJZZY | CERAM C 2.2UF 10V 6RM188B31A225KE33D  | S AA      | AA      |
| C 0028     | RC-KZA115WJZZY | CERAM C 2.2UF 10V 6RM188B31A225KE33D  | S AA      | AA      |
| C 0029     | RC-KZA115WJZZY | CERAM C 2.2UF 10V 6RM188B31A225KE33D  | S AA      | AA      |
| C 0030     | VCAAPE1A127MY  | ELEC C 120UF 20% 10V LOW ESR          | S AA      | AC      |
| C 0031     | RC-KZA237WJZZY | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0032     | RC-KZA237WJZZY | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0033     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0034     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0035     | VCKY/Z1CB153KY | CAPACITOR 15NF 16V 10%                | S AA      | AA      |
| C 0036     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0037     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0038     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0039     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0040     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0043     | VCEASX0J107MY  | ELEC C 100UF 6.3V MVL6.3VC100MF60E1   | S AA      | AB      |
| C 0046     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0049     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0051     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0053     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0054     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0055     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0057     | VCKY/Z1CB153KY | CAPACITOR 15NF 16V 10%                | S AA      | AA      |
| C 0059     | RC-KZA237WJZZY | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0062     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0065     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0066     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0067     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0068     | RC-KZA237WJZZY | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0070     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0071     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0073     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0074     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0076     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0077     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0078     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0079     | VCKY/Z1HB102KY | CAPACITOR 1NF 50V 10%                 | S AA      | AA      |
| C 0080     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0081     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0082     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0084     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0085     | RC-KZA115WJZZY | CERAM C 2.2UF 10V 6RM188B31A225KE33D  | S AA      | AA      |
| C 0086     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0087     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0088     | VCKY/Z1HB102KY | CAPACITOR 1NF 50V 10%                 | S AA      | AA      |
| C 0089     | RC-KZA237WJZZY | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0090     | VCKY/Z1CB153KY | CAPACITOR 15NF 16V 10%                | S AA      | AA      |
| C 0091     | VCEASX0J107MY  | ELEC C 100UF 6.3V MVL6.3VC100MF60E1   | S AA      | AB      |
| C 0092     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0093     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0094     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0095     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0096     | RC-KZA237WJZZY | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0097     | VCKY/Z1CB473KY | CAPACITOR 47NF 16V 10%                | S AA      | AA      |
| C 0098     | RC-KZA237WJZZY | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0099     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0100     | RC-KZA115WJZZY | CERAM C 2.2UF 10V 6RM188B31A225KE33D  | S AA      | AA      |
| C 0101     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0102     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0103     | VCKY/Z1CF104ZY | CAPACITOR 100NF 16V 20%               | S AA      | AA      |

| REF No | PARTS           | DESCRIPTION                           | • SN CODE | EX CODE |
|--------|-----------------|---------------------------------------|-----------|---------|
| C 0104 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0105 | VCKY/Z1CB153KY  | CAPACITOR 15NF 16V 10%                | S AA      | AA      |
| C 0106 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0107 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0108 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0111 | RC-KZA237WJZZY  | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0112 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0113 | VCKY/CY1B105KY  | CAPACITOR 6RM398 105K 6.3 (1608)SMD   | S AA      | AA      |
| C 0114 | VCKY/CY1AB475KN | CAPACITOR 6RM398 475K 10 (1608)SMD    | S AA      | AA      |
| C 0115 | RC-KZA237WJZZY  | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0116 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0117 | VCEASX0J107MY   | ELEC C 100UF 6.3V MVL6.3VC100MF60E1   | S AA      | AB      |
| C 0118 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0119 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0120 | VCKY/Z1HB102KY  | CAPACITOR 1NF 50V 10%                 | S AA      | AA      |
| C 0121 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0124 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0125 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0126 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0127 | RC-KZA115WJZZY  | CERAM C 2.2UF 10V 6RM188B31A225KE33D  | S AA      | AA      |
| C 0128 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0131 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0136 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0139 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0140 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0142 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0144 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0145 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0146 | RC-KZA237WJZZY  | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0147 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0149 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0150 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0151 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0154 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0155 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0156 | VCKY/Z1HB102KY  | CAPACITOR 1NF 50V 10%                 | S AA      | AA      |
| C 0157 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0159 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0162 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0163 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0165 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0166 | RC-KZA237WJZZY  | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0167 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0170 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0171 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0172 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0173 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0174 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0175 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0176 | VCKY/Z1HB102KY  | CAPACITOR 1NF 50V 10%                 | S AA      | AA      |
| C 0177 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0180 | VCCCZ1H4703Y    | C CERAM 47PF 50V 5%                   | S AA      | AA      |
| C 0181 | VCKY/Z1HB472KY  | CAPACITOR 4.7NF 50V 10%               | S AA      | AA      |
| C 0182 | VCKY/Z1HB472KY  | CAPACITOR 4.7NF 50V 10%               | S AA      | AA      |
| C 0183 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0184 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0185 | RC-KZA115WJZZY  | CERAM C 2.2UF 10V 6RM188B31A225KE33D  | S AA      | AA      |
| C 0186 | RC-KZA115WJZZY  | CERAM C 2.2UF 10V 6RM188B31A225KE33D  | S AA      | AA      |
| C 0189 | VCCCZ1H43317Y   | C CERAM 330PF 50V 5%                  | S AA      | AA      |
| C 0190 | VCCCZ1H43317Y   | C CERAM 330PF 50V 5%                  | S AA      | AA      |
| C 0191 | VCCCZ1H4703Y    | C CERAM 47PF 50V 5%                   | S AA      | AA      |
| C 0195 | RC-KZA237WJZZY  | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0196 | RC-KZA237WJZZY  | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0197 | VCAAPE0J107MY   | ELEC C 100UF 20% 6.3V 65VP100M        | S AA      | AC      |
| C 0198 | RC-KZA237WJZZY  | CERAM C EMK212B7J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0202 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0203 | VCCCZ1H43317Y   | C CERAM 330PF 50V 5%                  | S AA      | AA      |
| C 0204 | VCCCZ1H43317Y   | C CERAM 330PF 50V 5%                  | S AA      | AA      |
| C 0207 | VCKY/Z1EF104ZY  | CAPACITOR 100NF 25V 20%               | S AA      | AA      |
| C 0208 | VCKY/Z1EF104ZY  | CAPACITOR 100NF 25V 20%               | S AA      | AA      |
| C 0217 | VCKY/TVEB224KY  | CERAM C 220NF 25V 10%                 | S AA      | AA      |
| C 0218 | VCKY/TVEB224KY  | CERAM C 220NF 25V 10%                 | S AA      | AA      |
| C 0220 | VCKY/Z1EF104ZY  | CAPACITOR 100NF 25V 20%               | S AA      | AA      |
| C 0221 | VCKY/CY1CB224KY | CAPACITOR 6RM398 224K 16 (1608)SMD    | S AA      | AA      |
| C 0223 | VCKY/CY1CB224KY | CAPACITOR 6RM398 224K 16 (1608)SMD    | S AA      | AA      |
| C 0224 | RC-KZA621WJZZY  | CERAM C 1UF 25V TMK107B7J105KAPT      | S AA      | AA      |
| C 0225 | VCEASK1Q1227MY  | ELEC C 220UF 20% 16V MVY16VC220MF80   | S AA      | AB      |
| C 0230 | VCCCZ1H43317Y   | C CERAM 330PF 50V 5%                  | S AA      | AA      |
| C 0232 | VCCCZ1H43317Y   | C CERAM 330PF 50V 5%                  | S AA      | AA      |
| C 0234 | VCCCZ1H43317Y   | C CERAM 330PF 50V 5%                  | S AA      | AA      |
| C 0248 | VCCCZ1H43317Y   | C CERAM 330PF 50V 5%                  | S AA      | AA      |
| C 0253 | VCCCZ1H43317Y   | C CERAM 330PF 50V 5%                  | S AA      | AA      |
| C 0261 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |
| C 0262 | VCKY/Z1CF104ZY  | CAPACITOR 100NF 16V 20%               | S AA      | AA      |



| REF No. | PARTS           | DESCRIPTION                          | * SN CODE | EX CODE |
|---------|-----------------|--------------------------------------|-----------|---------|
| C 0263  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0265  | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0266  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0319  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0320  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0323  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0324  | VCKY/CYJ8105KY  | CAPACITOR 6RM398 105K 6.3 (1608)SMD  | S AA      | AA      |
| C 0325  | VCKY/CYJ8105KY  | CAPACITOR 6RM398 105K 6.3 (1608)SMD  | S AA      | AA      |
| C 0326  | RC-KZA069WJZZY  | CERAM C 4.7UF 10V 6RM218B31A475KA74L | S AA      | AA      |
| C 0327  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0330  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0331  | VCC0CZ1H4H101JY | S. CHIP CAP 100PF 50V 5%             | S AA      | AA      |
| C 0332  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0333  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0336  | VCC0CZ1H4H20JY  | C CERAM 22PF 50V 5%                  | S AA      | AA      |
| C 0337  | VCKY/CZ1C8103KY | CAPACITOR 10NF 16V 10%               | S AA      | AA      |
| C 0338  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0339  | VCAAPE1A1217MY  | ELEC C 120UF 20% 10V LOW ESR         | S AA      | AC      |
| C 0341  | VRS-CZ1JF121JY  | RES 0402 120 OHM 5% 1/16W SMD        | S AA      | AA      |
| C 0342  | VCEASX0JN107MY  | ELEC C 100UF 6.3V MVL6, 3VC100MF60E1 | S AA      | AB      |
| C 0343  | VCC0CZ1H4H101JY | S. CHIP CAP 100PF 50V 5%             | S AA      | AA      |
| C 0354  | VCC0CZ1H4H70JY  | C CERAM 47PF 50V 5%                  | S AA      | AA      |
| C 0355  | VCC0CZ1H4H70JY  | C CERAM 47PF 50V 5%                  | S AA      | AA      |
| C 0357  | VCKY/CZ1C8473KY | CAPACITOR 47NF 16V 10%               | S AA      | AA      |
| C 0359  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0360  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0361  | VCEASX0JN107MY  | ELEC C 100UF 6.3V MVL6, 3VC100MF60E1 | S AA      | AB      |
| C 0362  | VCEASX0JN107MY  | ELEC C 100UF 6.3V MVL6, 3VC100MF60E1 | S AA      | AB      |
| C 0363  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0364  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0365  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0367  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0368  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0369  | VCEASX0JN107MY  | ELEC C 100UF 6.3V MVL6, 3VC100MF60E1 | S AA      | AB      |
| C 0370  | RC-KZA115WJZZY  | CERAM C 2.2UF 10V 6RM188B31A225KE33D | S AA      | AA      |
| C 0371  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0372  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0374  | VCEASX0JN107MY  | ELEC C 100UF 6.3V MVL6, 3VC100MF60E1 | S AA      | AB      |
| C 0375  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0376  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0377  | VCEASX0JN107MY  | ELEC C 100UF 6.3V MVL6, 3VC100MF60E1 | S AA      | AB      |
| C 0383  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0384  | VCEASX0JN107MY  | ELEC C 100UF 6.3V MVL6, 3VC100MF60E1 | S AA      | AB      |
| C 0387  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0389  | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0390  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0391  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0392  | VCKY/CZ1C8223KY | CAPACITOR 22NF 16V 10%               | S AA      | AA      |
| C 0393  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0394  | VCC0CZ1H4H20JY  | C CERAM 22PF 50V 5%                  | S AA      | AA      |
| C 0395  | VCC0CZ1H4H20JY  | C CERAM 22PF 50V 5%                  | S AA      | AA      |
| C 0399  | VCC0CZ1H4H30JY  | S. CHIP CAP 33PF 50V 5%              | S AA      | AA      |
| C 0401  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0405  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0406  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0408  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0409  | VCC0CZ1H4H30JY  | S. CHIP CAP 33PF 50V 5%              | S AA      | AA      |
| C 0410  | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0413  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0415  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0416  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0417  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0418  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0420  | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%              | S AA      | AA      |
| C 0422  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0424  | VCC0CZ1H4H71JY  | C CERAM 270PF 50V 5%                 | S AA      | AA      |
| C 0426  | VCKY/CY1C8224KY | CAPACITOR 6RM398 224K 16 (1608)SMD   | S AA      | AA      |
| C 0427  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0428  | VCKY/CZ1C8103KY | CAPACITOR 10NF 16V 10%               | S AA      | AA      |
| C 0429  | VCKY/CY1C8224KY | CAPACITOR 6RM398 224K 16 (1608)SMD   | S AA      | AA      |
| C 0430  | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10% | S AA      | AA      |
| C 0431  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0432  | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%              | S AA      | AA      |
| C 0450  | VCKY/CZ1C8473KY | CAPACITOR 47NF 16V 10%               | S AA      | AA      |
| C 0701  | RC-KZA114WJZZY  | CERAM C 1UF 25V 6RM188B31E105AK75D   | S AA      | AA      |
| C 0702  | RC-KZA114WJZZY  | CERAM C 1UF 25V 6RM188B31E105AK75D   | S AA      | AA      |
| C 0703  | VCAAPE0J107MY   | ELEC C 100UF 20% 6.3V 65VP100M       | S AA      | AC      |
| C 0737  | VCC0CZ1H4H20JY  | C CERAM 22PF 50V 5%                  | S AA      | AA      |
| C 0739  | VCC0CZ1H4H20JY  | C CERAM 22PF 50V 5%                  | S AA      | AA      |
| C 0740  | VCC0CZ1H4H20JY  | C CERAM 22PF 50V 5%                  | S AA      | AA      |
| C 0741  | VCC0CZ1H4H20JY  | C CERAM 22PF 50V 5%                  | S AA      | AA      |
| C 0761  | RC-KZA621WJQZY  | CERAM C 1UF 25V TMK107B105KAFT       | S AA      | AA      |
| C 0763  | RC-KZA621WJQZY  | CERAM C 1UF 25V TMK107B105KAFT       | S AA      | AA      |
| C 1114  | VCKY/VIEB224KY  | CERAM C 220NF 25V 10%                | S AA      | AA      |

| REF No.   | PARTS           | DESCRIPTION                                     | * SN CODE | EX CODE |
|-----------|-----------------|---|-----------|---------|
| C 1133    | VCKY/CZIEF104ZY | CAPACITOR 100NF 25V 20%                         | S AA      | AA      |
| C 1134    | VCEASKION227MY  | ELEC C 220UF 20% 16V MVY16VC220MF80             | S AA      | AB      |
| C 1135    | VCKY/VIEB224KY  | CERAM C 220NF 25V 10%                           | S AA      | AA      |
| C 1327    | RC-KZA115WJZZY  | CERAM C 2.2UF 10V 6RM188B31A225KE33D            | S AA      | AA      |
| C 1328    | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%                         | S AA      | AA      |
| C 1329    | VCC0CZ1H4H101JY | S. CHIP CAP 100PF 50V 5%                        | S AA      | AA      |
| C 2301    | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%                         | S AA      | AA      |
| C 2302    | VCC0CZ1H4H20JY  | C CERAM 22PF 50V 5%                             | S AA      | AA      |
| C 2303    | VCKY/CZIF104ZY  | CAPACITOR 100NF 16V 20%                         | S AA      | AA      |
| C 2861    | VCKY/CZ1H8222KY | CAPACITOR 2.2NF 50V 10%                         | S AA      | AA      |
| C 3397    | VCKY/CYJ8105KY  | CAPACITOR 6RM398 105K 6.3 (1608)SMD             | S AA      | AA      |
| C 3398    | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10%            | S AA      | AA      |
| C 3399    | VCEASKION227MY  | ELEC C 220UF 20% 16V MVY16VC220MF80             | S AA      | AB      |
| C 3401    | RC-KZA115WJZZY  | CERAM C 2.2UF 10V 6RM188B31A225KE33D            | S AA      | AA      |
| C 3402    | VCKY/CY1C8224KY | CAPACITOR 6RM398 224K 16 (1608)SMD              | S AA      | AA      |
| C 3403    | VCKY/CY1C8224KY | CAPACITOR 6RM398 224K 16 (1608)SMD              | S AA      | AA      |
| C 3404    | VCC0CZ1H4H30JY  | S. CHIP CAP 33PF 50V 5%                         | S AA      | AA      |
| C 3405    | VCC0CZ1H4H70JY  | C CERAM 47PF 50V 5%                             | S AA      | AA      |
| C 3406    | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10%            | S AA      | AA      |
| C 3407    | VCC0CZ1H4H70JY  | C CERAM 47PF 50V 5%                             | S AA      | AA      |
| C 3408    | VCC0CZ1H4H30JY  | S. CHIP CAP 33PF 50V 5%                         | S AA      | AA      |
| C 3409    | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10%            | S AA      | AA      |
| C 3410    | VCKY/CYJ8105KY  | CAPACITOR 6RM398 105K 6.3 (1608)SMD             | S AA      | AA      |
| C 3411    | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10%            | S AA      | AA      |
| C 3412    | VCKY/CZ1H8222KY | CAPACITOR 2.2NF 50V 10%                         | S AA      | AA      |
| C 3426    | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10%            | S AA      | AA      |
| C 3428    | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10%            | S AA      | AA      |
| C 3429    | VCC0CZ1H4H70JY  | C CERAM 47PF 50V 5%                             | S AA      | AA      |
| C 3430    | VCC0CZ1H4H30JY  | S. CHIP CAP 33PF 50V 5%                         | S AA      | AA      |
| C 3431    | RC-KZA621WJQZY  | CERAM C 1UF 25V TMK107B105KAFT                  | S AA      | AA      |
| C 3432    | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10%            | S AA      | AA      |
| C 3434    | RC-KZA237WJZZY  | CERAM C EMK2128J106K6FT 10UF 16V 10%            | S AA      | AA      |
| C 3435    | VCC0CZ1H4H70JY  | C CERAM 47PF 50V 5%                             | S AA      | AA      |
| C 3436    | VCC0CZ1H4H30JY  | S. CHIP CAP 33PF 50V 5%                         | S AA      | AA      |
| C 3437    | RC-KZA621WJQZY  | CERAM C 1UF 25V TMK107B105KAFT                  | S AA      | AA      |
| C 3438    | RC-KZA114WJZZY  | CERAM C 1UF 25V 6RM188B31E105AK75D              | S AA      | AA      |
| C 3439    | RC-KZA114WJZZY  | CERAM C 1UF 25V 6RM188B31E105AK75D              | S AA      | AA      |
| C 3440    | VCEASKION227MY  | ELEC C 220UF 20% 16V MVY16VC220MF80             | S AA      | AB      |
| DM 0001   | VCKY/VIEB225ZY  | C CERAM 2.2UF 16V 2125SMD - ONLY FOR LC24LE220E | S --      | --      |
| RESISTORS |                 |   |           |         |
| R 0004    | VRS-CY1JF104JY  | RES 0603 100KOHM 5% 1/10W SMD                   | S AA      | AA      |
| R 0007    | VRS-CY1JF122FY  | RES 0603 1.2KOHM 1% 1/10W SMD                   | S AA      | AA      |
| R 0008    | VRS-CY1JF202FY  | RES 0603 2KOHM 1% 1/10W SMD                     | S AA      | AA      |
| R 0009    | VRS-CZ1JF473JY  | RES 0402 47KOHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0010    | VRS-CY1JF103JY  | RES 0603 10KOHM 5% 1/10W SMD                    | S AA      | AA      |
| R 0011    | VRS-CZ1JF121JY  | RES 0402 120 OHM 5% 1/16W SMD                   | S AA      | AA      |
| R 0012    | VRS-CY1JF222JY  | RES 0603 2.2KOHM 5% 1/10W SMD                   | S AA      | AA      |
| R 0013    | VRS-CZ1JF103JY  | RES 0402 10KOHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0014    | VRS-CZ1JF102JY  | RES 0402 1KOHM 5% 1/16W SMD                     | S AA      | AA      |
| R 0015    | VRS-CZ1JF101JY  | RES 0402 100 OHM 5% 1/16W SMD                   | S AA      | AA      |
| R 0021    | VRS-CY1JF105JY  | RES 0603 1MOHM 5% 1/10W SMD                     | S AA      | AA      |
| R 0022    | VRS-CY1JF000JY  | RES 0603 0 OHM 5% 1/10W SMD                     | S AA      | AA      |
| R 0023    | VRS-CY1JF000JY  | RES 0603 0 OHM 5% 1/10W SMD                     | S AA      | AA      |
| R 0024    | VRS-CZ1JF101JY  | RES 0402 100 OHM 5% 1/16W SMD                   | S AA      | AA      |
| R 0025    | VRS-CZ1JF223JY  | RES 0402 22KOHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0026    | VRS-CZ1JF101JY  | RES 0402 100 OHM 5% 1/16W SMD                   | S AA      | AA      |
| R 0027    | VRS-CZ1JF223JY  | RES 0402 22KOHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0031    | VRS-CY1JF391FY  | RES 0603 390 OHM 1% 1/10W SMD                   | S AA      | AA      |
| R 0033    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0034    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0035    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0036    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0037    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0038    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0039    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0040    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0041    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0042    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0043    | VRS-CZ1JF471JY  | RES 0402 470 OHM 5% 1/16W SMD                   | S AA      | AA      |
| R 0044    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0045    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0046    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0047    | VRS-CZ1JF471JY  | RES 0402 470 OHM 5% 1/16W SMD                   | S AA      | AA      |
| R 0049    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0050    | VRS-CZ1JF470JY  | RES 0402 47 OHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0053    | VRS-CY1JF330JY  | RES 0603 33 OHM 5% 1/10W SMD                    | S AA      | AA      |
| R 0055    | VRS-CY1JF102FY  | CHIP RESISTOR 1% 1K                             | S AA      | AA      |
| R 0056    | VRS-CZ1JF103JY  | RES 0402 10KOHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0057    | VRS-CY1JF102JY  | CHIP RESISTOR 1% 1K                             | S AA      | AA      |
| R 0058    | VRS-CZ1JF223JY  | RES 0402 22KOHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0060    | VRS-CZ1JF101JY  | RES 0402 100 OHM 5% 1/16W SMD                   | S AA      | AA      |
| R 0061    | VRS-CZ1JF223JY  | RES 0402 22KOHM 5% 1/16W SMD                    | S AA      | AA      |
| R 0063    | VRS-CZ1JF102JY  | RES 0402 1KOHM 5% 1/16W SMD                     | S AA      | AA      |

|  | REF No. | PARTS          | DESCRIPTION                   | S | SN CODE | EX CODE |
|--|---------|----------------|-------------------------------|---|---------|---------|
|  | R 0066  | VR5-CZ1JF470JY | RES 0402 47 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0068  | VR5-CY1JF103JY | RES 0603 10KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0073  | VR5-CY1JF102JY | RES 0603 1KOHM 5% 1/10W SMD   | S | AA      | AA      |
|  | R 0076  | VR5-CY1JF101JY | RES 0603 100 OHM 5% 1/10W SMD | S | AA      | AA      |
|  | R 0079  | VR5-CY1JF103JY | RES 0603 10KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0080  | VR5-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0082  | VR5-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0084  | VR5-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0086  | VR5-CZ1JF000JY | RES 0402 0 OHM 5% 1/16W SMD   | S | AA      | AA      |
|  | R 0088  | VR5-CZ1JF102JY | RES 0402 1KOHM 5% 1/16W SMD   | S | AA      | AA      |
|  | R 0092  | VR5-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0101  | VR5-CY1JF333JY | RES 0603 33KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0102  | VR5-CY1JF333JY | RES 0603 33KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0103  | VR5-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0104  | VR5-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0105  | VR5-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD | S | AA      | AA      |
|  | R 0107  | VR5-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0109  | VR5-CZ1JF000JY | RES 0402 0 OHM 5% 1/16W SMD   | S | AA      | AA      |
|  | R 0110  | VR5-CY1JF333JY | RES 0603 33KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0111  | VR5-CZ1JF000JY | RES 0402 0 OHM 5% 1/16W SMD   | S | AA      | AA      |
|  | R 0112  | VR5-CY1JF472JY | RES 0603 4.7KOHM 5% 1/10W SMD | S | AA      | AA      |
|  | R 0113  | VR5-CY1JF472JY | RES 0603 4.7KOHM 5% 1/10W SMD | S | AA      | AA      |
|  | R 0114  | VR5-CY1JF101JY | RES 0603 100 OHM 5% 1/10W SMD | S | AA      | AA      |
|  | R 0115  | VR5-CY1JF101JY | RES 0603 100 OHM 5% 1/10W SMD | S | AA      | AA      |
|  | R 0120  | VR5-CZ1JF472JY | RES 0402 4.7KOHM 5% 1/16W SMD | S | AA      | AA      |
|  | R 0121  | VR5-CZ1JF472JY | RES 0402 4.7KOHM 5% 1/16W SMD | S | AA      | AA      |
|  | R 0122  | VR5-CZ1JF102JY | RES 0402 1KOHM 5% 1/16W SMD   | S | AA      | AA      |
|  | R 0133  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0134  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0135  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0136  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0137  | VR5-CY1JF102FY | CHIP RESISTOR 1% 1K           | S | AA      | AA      |
|  | R 0138  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0139  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0140  | VR5-CY1JF102FY | CHIP RESISTOR 1% 1K           | S | AA      | AA      |
|  | R 0141  | VR5-CZ1JF220JY | RES 0402 22 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0142  | VR5-CZ1JF220JY | RES 0402 22 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0143  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0144  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0145  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0146  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0147  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0148  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0149  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0150  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0151  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0152  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0153  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0154  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0155  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0156  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0157  | VR5-CY1JF102FY | CHIP RESISTOR 1% 1K           | S | AA      | AA      |
|  | R 0158  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0159  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0160  | VR5-CY1JF102FY | CHIP RESISTOR 1% 1K           | S | AA      | AA      |
|  | R 0161  | VR5-CZ1JF220JY | RES 0402 22 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0162  | VR5-CZ1JF220JY | RES 0402 22 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0163  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0164  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0165  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0166  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0167  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0168  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0169  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0170  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0171  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0172  | VR5-CZ1JF560JY | RES 0402 56 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0173  | VR5-CZ1JF750JY | RES 0402 75 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0174  | VR5-CY1JF623JY | RES 0603 62KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0175  | VR5-CY1JF113FY | RES 0603 11KOHM 1% 1/10W SMD  | S | AA      | AA      |
|  | R 0176  | VR5-CZ1JF750JY | RES 0402 75 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0178  | VR5-CY1JF750JY | S CHIP RESISTOR 75 OHM        | S | AA      | AA      |
|  | R 0179  | VR5-CZ1JF750JY | RES 0402 75 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0180  | VR5-CZ1JF750JY | RES 0402 75 OHM 5% 1/16W SMD  | S | AA      | AA      |
|  | R 0184  | VR5-CY1JF103JY | RES 0603 10KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0185  | VR5-CY1JF471JY | RES 0603 470 OHM 5% 1/10W SMD | S | AA      | AA      |
|  | R 0186  | VR5-CY1JF103JY | RES 0603 10KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0187  | VR5-CY1JF683JY | RES 0603 68KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0188  | VR5-CY1JF123JY | RES 0603 12KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0189  | VR5-CY1JF123JY | RES 0603 12KOHM 5% 1/10W SMD  | S | AA      | AA      |
|  | R 0191  | VR5-CY1JF273JY | S CHIP RES 27-OHM TAPED       | S | AA      | AA      |
|  | R 0192  | VR5-CY1JF221JY | RES 0603 220 OHM 5% 1/10W SMD | S | AA      | AA      |
|  | R 0193  | VR5-CY1JF750JY | S CHIP RESISTOR 75 OHM        | S | AA      | AA      |
|  | R 0194  | VR5-CY1JF680JY | RES 0603 68 OHM 5% 1/10W SMD  | S | AA      | AA      |

|        | REF No.        | PARTS                                   | DESCRIPTION | * SN CODE | EX CODE |
|--------|----------------|---|-------------|-----------|---------|
| R 0197 | VR5-CZ1JF0101J | RES 0402 100 OHM 5% 1/16W SMD           | S           | AA        | AA      |
| R 0198 | VR5-CZ1JF0101J | RES 0402 100 OHM 5% 1/16W SMD           | S           | AA        | AA      |
| R 0201 | VR5-CZ1JF0001J | RES 0402 0 OHM 5% 1/16W SMD             | S           | AA        | AA      |
| R 0203 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0204 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0205 | VR5-CZ1JF7501J | RES 0402 75 OHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0206 | VR5-CZ1JF7501J | RES 0402 75 OHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0207 | VR5-CZ1JF7501J | RES 0402 75 OHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0208 | VR5-CY1JF471J  | RES 0603 470 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0209 | VR5-CY1JF471J  | RES 0603 470 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0210 | VR5-CY1JF222J  | RES 0603 2.2KOHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0211 | VR5-CY1JF0303J | RES 0603 10KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0212 | VR5-CY1JF473J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0213 | VR5-CY1JF473J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0216 | VR5-CY1JF0101J | RES 0603 100 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0217 | VR5-CY1JF0101J | RES 0603 100 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0222 | VR5-CY1JF0303J | RES 0603 10KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0223 | VR5-CY1JF0303J | RES 0603 10KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0224 | VR5-CY1JF123J  | RES 0603 12KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0225 | VR5-CY1JF123J  | RES 0603 12KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0226 | VR5-CY1JF472J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0227 | VR5-CY1JF473J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0228 | VR5-CY1JF473J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0229 | VR5-CY1JF0202J | RES 0603 1KOHM 5% 1/10W SMD             | S           | AA        | AA      |
| R 0230 | VR5-CY1JF0101J | RES 0603 100 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0231 | VR5-CY1JF0101J | RES 0603 100 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0233 | VR5-CY1JF472J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0244 | VR5-CY1JF472J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0245 | VR5-CY1JF473J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0246 | VR5-CY1JF473J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0247 | VR5-CY1JF0202J | RES 0603 1KOHM 5% 1/10W SMD             | S           | AA        | AA      |
| R 0248 | VR5-CY1JF0101J | RES 0603 100 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0249 | VR5-CY1JF0101J | RES 0603 100 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0250 | VR5-CY1JF472J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0251 | VR5-CZ1JF472J  | RES 0402 47KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0252 | VR5-CZ1JF473J  | RES 0402 47KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0253 | VR5-CZ1JF473J  | RES 0402 47KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0254 | VR5-CZ1JF0101J | RES 0402 100 OHM 5% 1/16W SMD           | S           | AA        | AA      |
| R 0255 | VR5-CZ1JF0101J | RES 0402 100 OHM 5% 1/16W SMD           | S           | AA        | AA      |
| R 0256 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0257 | VR5-CZ1JF0202J | RES 0402 1KOHM 5% 1/16W SMD             | S           | AA        | AA      |
| R 0258 | VR5-CZ1JF472J  | RES 0402 47KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0266 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0284 | VR5-CY1JF0101J | RES 0603 100 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0292 | VR5-CZ1JF473J  | RES 0402 47KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0293 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0295 | VR5-CY1JF0303J | RES 0603 10KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0296 | VR5-CY1JF0303J | RES 0603 10KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0298 | VR5-CY1JF472J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0299 | VR5-CZ1JF472J  | RES 0402 47KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0300 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0302 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0304 | VR5-CZ1JF0001J | RES 0402 0 OHM 5% 1/16W SMD             | S           | AA        | AA      |
| R 0305 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0320 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0321 | VR5-CZ1JF7501J | RES 0402 75 OHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0323 | VR5-CZ1JF7501J | RES 0402 75 OHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0324 | VR5-CZ1JF7501J | RES 0402 75 OHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0325 | VR5-CY1JF0303J | RES 0603 10KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0327 | VR5-CY1JF472J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0328 | VR5-CY1JF123J  | RES 0603 12KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0329 | VR5-CY1JF472J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0330 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0332 | VR5-CY1JF0303J | RES 0603 10KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0333 | VR5-CY1JF123J  | RES 0603 12KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0345 | VR5-CY1JF0101J | RES 0603 100 OHM 5% 1/10W SMD           | S           | AA        | AA      |
| R 0347 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0348 | VR5-CY1JF0202J | RES 0603 1KOHM 5% 1/10W SMD             | S           | AA        | AA      |
| R 0349 | VR5-CY1JF472J  | RES 0603 47KOHM 5% 1/10W SMD            | S           | AA        | AA      |
| R 0350 | VR5-CY1JF0202J | RES 0603 1KOHM 5% 1/10W SMD             | S           | AA        | AA      |
| R 0351 | VR5-CY1JF0202J | RES 0603 1KOHM 5% 1/10W SMD             | S           | AA        | AA      |
| R 0352 | VR5-CZ1JF472J  | RES 0402 47KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0357 | RFLN0643VAPZN  | FERRITE 0402 SMD JIS 1005 MMZ1005F330C  | S           | --        | --      |
| R 0358 | RFLN0643VAPZN  | FERRITE 0402 SMD JIS 1005 MMZ1005F330C  | S           | --        | --      |
| R 0359 | VR5-TW2HPR56J  | RES LCR1/4R15I 0.56 OHM 5% 1/2W SMD     | S           | AA        | AA      |
| R 0360 | VR5-TW2HPR56J  | RES LCR1/4R15I 0.56 OHM 5% 1/2W SMD     | S           | AA        | AA      |
| R 0361 | VR5-CZ1JF0303J | RES 0402 10KOHM 5% 1/16W SMD            | S           | AA        | AA      |
| R 0362 | VR5-CZ1JF0101J | RES 0402 100 OHM 5% 1/16W SMD           | S           | AA        | AA      |
| R 0363 | RBLN-A533WJZZY | FERRITE SMD ARRAY JIS 1005 MZA2010F330C | S           | --        | --      |
| R 0364 | RBLN-A533WJZZY | FERRITE SMD ARRAY JIS 1005 MZA2010F330C | S           | --        | --      |
| R 0375 | RFLN0643VAPZN  | FERRITE 0402 SMD JIS 1005 MMZ1005F330C  | S           | --        | --      |
| R 0378 | RFLN0643VAPZN  | FERRITE 0402 SMD JIS 1005 MMZ1005F330C  | S           | --        | --      |
| R 0379 | RBLN-A533WJZZY | FERRITE SMD ARRAY JIS 1005 MZA2010F330C | S           | --        | --      |
| R 0380 | RBLN-A533WJZZY | FERRITE SMD ARRAY JIS 1005 MZA2010F330C | S           | --        | --      |

| REF No. | PARTS          | DESCRIPTION                   | * SN CODE | EX CODE |
|---------|----------------|-------------------------------|-----------|---------|
| R 0391  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0394  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0397  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0398  | VRS-CZ1JF682FY | RES 0402 6.8KOHM 1% 1/16W SMD | S AA      | AA      |
| R 0403  | VRS-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0404  | VRS-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0407  | VRS-CZ1JF000JY | RES 0402 0 OHM 5% 1/16W SMD   | S AA      | AA      |
| R 0413  | VRS-CZ1JF100JY | RES 0402 10 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0414  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0415  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0417  | VRS-CY1JF103JY | RES 0603 10KOHM 5% 1/10W SMD  | S AA      | AA      |
| R 0418  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0419  | VRS-CY1JF100JY | RES 0603 10 OHM 5% 1/10W SMD  | S AA      | AA      |
| R 0420  | VRS-CY1JF472JY | RES 0603 4.7KOHM 5% 1/10W SMD | S AA      | AA      |
| R 0421  | VRS-CY1JF472JY | RES 0603 4.7KOHM 5% 1/10W SMD | S AA      | AA      |
| R 0422  | VRS-CY1JF472JY | RES 0603 4.7KOHM 5% 1/10W SMD | S AA      | AA      |
| R 0423  | VRS-CY1JF220JY | RES 0603 22 OHM 5% 1/10W SMD  | S AA      | AA      |
| R 0424  | VRS-CY1JF103JY | RES 0603 10KOHM 5% 1/10W SMD  | S AA      | AA      |
| R 0425  | VRS-CZ1JF220JY | RES 0402 22 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0426  | VRS-CY1JF473JY | RES 0603 4.7KOHM 5% 1/10W SMD | S AA      | AA      |
| R 0427  | VRS-CY1JF472JY | RES 0603 4.7KOHM 5% 1/10W SMD | S AA      | AA      |
| R 0447  | VRS-CZ1JF102JY | RES 0402 1KOHM 5% 1/16W SMD   | S AA      | AA      |
| R 0448  | VRS-CZ1JF152JY | RES 0402 1.5KOHM 5% 1/16W SMD | S AA      | AA      |
| R 0450  | VRS-CZ1JF470JY | RES 0402 47 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0452  | VRS-CZ1JF470JY | RES 0402 47 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0453  | VRS-CZ1JF470JY | RES 0402 47 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0455  | VRS-CZ1JF470JY | RES 0402 47 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0482  | VRS-CZ1JF221JY | RES 0402 220 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0484  | VRS-CZ1JF221JY | RES 0402 220 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0485  | VRS-CZ1JF472JY | RES 0402 4.7KOHM 5% 1/16W SMD | S AA      | AA      |
| R 0486  | VRS-CZ1JF472JY | RES 0402 4.7KOHM 5% 1/16W SMD | S AA      | AA      |
| R 0498  | VRS-CZ1JF472JY | RES 0402 4.7KOHM 5% 1/16W SMD | S AA      | AA      |
| R 0500  | VRS-CZ1JF472JY | RES 0402 4.7KOHM 5% 1/16W SMD | S AA      | AA      |
| R 0501  | VRS-CZ1JF102JY | RES 0402 1KOHM 5% 1/16W SMD   | S AA      | AA      |
| R 0502  | VRS-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0503  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0504  | VRS-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0505  | VRS-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0509  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0510  | VRS-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0511  | VRS-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0512  | VRS-CZ1JF100JY | RES 0402 10 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0513  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0522  | VRS-CZ1F000JY  | RES 0402 0 OHM 5% 1/16W SMD   | S AA      | AA      |
| R 0530  | VRS-CZ1JF620JY | RES 0402 62 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0534  | VRS-CZ1JF470JY | RES 0402 47 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0535  | VRS-CZ1JF220JY | RES 0402 22 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0536  | VRS-CZ1JF220JY | RES 0402 22 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0537  | VRS-CZ1JF000JY | RES 0402 0 OHM 5% 1/16W SMD   | S AA      | AA      |
| R 0538  | VRS-CZ1JF000JY | RES 0402 0 OHM 5% 1/16W SMD   | S AA      | AA      |
| R 0540  | VRS-CZ1JF470JY | RES 0402 47 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0542  | VRS-CZ1JF470JY | RES 0402 47 OHM 5% 1/16W SMD  | S AA      | AA      |
| R 0543  | VRS-CZ1JF331JY | RES 0402 330 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0544  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0545  | VRS-CZ1JF331JY | RES 0402 330 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0546  | VRS-CZ1JF392JY | RES 0402 3.9KOHM 5% 1/16W SMD | S AA      | AA      |
| R 0547  | VRS-CZ1JF151JY | RES 0402 150 OHM 5% 1/16W SMD | S AA      | AA      |
| R 0549  | VRS-CY1JF100JY | RES 0603 10 OHM 5% 1/10W SMD  | S AA      | AA      |
| R 0550  | VRS-CZ1JF472JY | RES 0402 4.7KOHM 5% 1/16W SMD | S AA      | AA      |
| R 0551  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0554  | VRS-CZ1JF102JY | RES 0402 1KOHM 5% 1/16W SMD   | S AA      | AA      |
| R 0555  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 0556  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 0560  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0658  | VRS-CZ1JF822JY | RES 0402 8.2KOHM 5% 1/16W SMD | S AA      | AA      |
| R 0702  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 0703  | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD  | S AA      | AA      |
| R 1001  | VRS-SB1FF330JY | RES 33 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1002  | VRS-SB1FF330JY | RES 33 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1003  | VRS-SB1FF330JY | RES 33 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1004  | VRS-SB1FF330JY | RES 33 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1005  | VRS-SB1FF330JY | RES 33 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1006  | VRS-SB1FF330JY | RES 33 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1007  | VRS-SB1FF330JY | RES 33 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1008  | VRS-SB1FF330JY | RES 33 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1009  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1010  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1011  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1012  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1013  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1014  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1015  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1016  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |
| R 1017  | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD       | S AA      | AA      |

| REF No.             | PARTS          | DESCRIPTION                                       | * SN CODE | EX CODE |
|---------------------|----------------|---|-----------|---------|
| R 1018              | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD                           | S AA      | AA      |
| R 1019              | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD                           | S AA      | AA      |
| R 1020              | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD                           | S AA      | AA      |
| R 1021              | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD                           | S AA      | AA      |
| R 1022              | VRS-SB1FF560JY | RES 56 OHM 5% 1/32W SMD                           | S AA      | AA      |
| R 1009              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 1121              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 1123              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 1174              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 1228              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 1318              | VRS-CY1JF472JY | RES 0603 4.7KOHM 5% 1/10W SMD                     | S AA      | AA      |
| R 1514              | VRS-CZ1JF220JY | RES 0402 22 OHM 5% 1/16W SMD                      | S AA      | AA      |
| R 1517              | VRS-CZ1F000JY  | RES 0402 0 OHM 5% 1/16W SMD                       | S AA      | AA      |
| R 1525              | VRS-CZ1JF220JY | RES 0402 22 OHM 5% 1/16W SMD                      | S AA      | AA      |
| R 1526              | VRS-SB1FF220JY | RES 22 OHM 5% 1/32W SMD                           | S AA      | AA      |
| R 1527              | VRS-SB1FF220JY | RES 22 OHM 5% 1/32W SMD                           | S AA      | AA      |
| R 2081              | VRS-CZ1JF151JY | RES 0402 150 OHM 5% 1/16W SMD                     | S AA      | AA      |
| R 2082              | VRS-CZ1JF151JY | RES 0402 150 OHM 5% 1/16W SMD                     | S AA      | AA      |
| R 2314              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 2315              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8133              | VRS-CZ1JF471JY | RES 0402 470 OHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8136              | VRS-CZ1JF221JY | RES 0402 220 OHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8137              | VRS-CZ1JF822JY | RES 0402 8.2KOHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8138              | VRS-CY1JF100JY | RES 0603 10 OHM 5% 1/10W SMD                      | S AA      | AA      |
| R 8139              | VRS-CY1JF100JY | RES 0603 10 OHM 5% 1/10W SMD                      | S AA      | AA      |
| R 8140              | VRS-CY1JF100JY | RES 0603 10 OHM 5% 1/10W SMD                      | S AA      | AA      |
| R 8141              | VRS-CY1JF273JY | S. CHIP RES. 27-OHM TAPED                         | S AA      | AA      |
| R 8142              | VRS-CZ1JF221JY | RES 0402 220 OHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8143              | VRS-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8144              | VRS-CZ1JF101JY | RES 0402 100 OHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8145              | VRS-CZ1JF333JY | RES 0402 33KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8146              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8147              | VRS-CZ1JF333JY | RES 0402 33KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8148              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8149              | VRS-CZ1JF473JY | RES 0402 47KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8150              | VRS-CY1JF104JY | RES 0603 100KOHM 5% 1/10W SMD                     | S AA      | AA      |
| R 8159              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8164              | VRS-CY1JF104JY | RES 0603 100KOHM 5% 1/10W SMD                     | S AA      | AA      |
| R 8166              | VRS-CZ1JF104JY | RES 0402 100KOHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8167              | VRS-CZ1JF471JY | RES 0402 470 OHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8168              | VRS-CZ1JF333JY | RES 0402 33KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8169              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8170              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8171              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8173              | VRS-CZ1JF104JY | RES 0402 100KOHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8174              | VRS-CZ1JF471JY | RES 0402 470 OHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8175              | VRS-CZ1JF333JY | RES 0402 33KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8176              | VRS-CZ1JF103JY | RES 0402 10KOHM 5% 1/16W SMD                      | S AA      | AA      |
| R 8178              | VRS-CZ1JF104JY | RES 0402 100KOHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8179              | VRS-CZ1JF104JY | RES 0402 100KOHM 5% 1/16W SMD                     | S AA      | AA      |
| R 8180              | VRS-CY1JF101JY | RES 0603 100 OHM 5% 1/10W SMD                     | S AA      | AA      |
| R 8181              | VRS-CY1JF101JY | RES 0603 100 OHM 5% 1/10W SMD                     | S AA      | AA      |
| R 8184              | VRS-CZ1JF104JY | RES 0402 100KOHM 5% 1/16W SMD                     | S AA      | AA      |
| DM 0002             | VRS-CZ1JF000JY | RES 0402 0 OHM 5% 1/16W SMD - ONLY FOR LC24LE220E | S AA      | AA      |
| MISCELLANEOUS PARTS |                |   |           |         |
| FB 0014             | VRS-CY1JF000JY | RES 0603 0 OHM 5% 1/10W SMD                       | S AA      | AA      |
| FB 0015             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0016             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0017             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0018             | VRS-CY1JF000JY | RES 0603 0 OHM 5% 1/10W SMD                       | S AA      | AA      |
| FB 0019             | VRS-CY1JF000JY | RES 0603 0 OHM 5% 1/10W SMD                       | S AA      | AA      |
| FB 0020             | VRS-CY1JF000JY | RES 0603 0 OHM 5% 1/10W SMD                       | S AA      | AA      |
| FB 0201             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0202             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0203             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0204             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0205             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0206             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0207             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0208             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 0301             | RBLN-A528WJZZY | FERRITE HI0809N600R-10                            | S AA      | AA      |
| FB 1501             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 1502             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| FB 1503             | RBLN-A529WJZZY | FERRITE MI0603M121R-10                            | S AA      | AA      |
| J 1003              | Q1AKJA024WJZZ  | HEADPHONE CCK-035-3470BZ                          | S AA      | AB      |
| J 1301              | Q1AKT0047CEZ   | EARPHONE JACK HST0998-72                          | S AA      | AG      |
| J 1305              | Q1AKEA086WJ00  | JACK RCA-101H(BK)                                 | S AA      | AB      |
| J 1401              | Q1AKA007WJZZ   | JACK RCA-512HAT-00A-03                            | S AB      | AE      |
| J 4001              | Q1AKJA024WJZZ  | HEADPHONE CCK-035-3470BZ                          | S AA      | AB      |
| J 8101              | Q50CZA0205WJQZ | SOCKET UAR27-4K5COL                               | S AA      | AB      |
| LU61701             | QLUGHA006WJZZY | METALLIC LUG SD01138-21                           | S AA      | AA      |
| LU61702             | QLUGHA006WJZZY | METALLIC LUG SD01138-21                           | S AA      | AA      |
| LU61704             | QLUGHA006WJZZY | METALLIC LUG SD01138-21                           | S AA      | AA      |

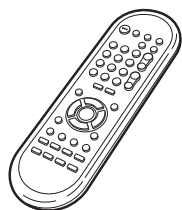
|                             | REF No. | PARTS          | DESCRIPTION                               | * | SN CODE | EX CODE |
|-----------------------------|---------|----------------|---|---|---------|---------|
|                             | LU61705 | QULGHA006WJZZY | METALLIC LU6 SD01138-21                   | S | AA      | AA      |
|                             | P 1701  | QPL6N0185FJZZY | CONNECTOR S138-PH-SM4-TB                  | S | AA      | AC      |
|                             | P 2302  | QPL6NA916WJZZY | CONNECTOR A1251WRO-5P5-5E JTW             | S | AA      | AB      |
|                             | P 2701  | QPL6NA160WJZZY | CONNECTOR SM048-PASS-TBT(L,F)             | S | AA      | AB      |
|                             | P 3072  | QPL6NA324WJZZY | CONNECTOR SM048-GHS-(FL)(SN)              | S | AA      | AB      |
|                             | SC 1101 | QSOCA161WJZZ   | SCART R6B-11H                             | S | AA      | AD      |
|                             | SC 1501 | QSOCA229WJZZ   | SOCKET DHR20-151F200/H-D8R10-A0020D       | S | AB      | AE      |
|                             | SC 1901 | QSOCA175WJZZY  | CONNECTOR HDMI A111924-A-15-R             | S | AB      | AE      |
|                             | SC 1902 | QSOCA175WJZZY  | CONNECTOR HDMI A111924-A-15-R             | S | AB      | AE      |
|                             | SC 1903 | QSOCA175WJZZY  | CONNECTOR HDMI A111924-A-15-R             | S | AB      | AE      |
|                             | SC 4401 | QCNMA332WJSA   | C.I.CARD SLOT                             | S | AD      | AK      |
|                             | SC 8202 | QCNCA995WJZZY  | CONNECTOR LVDS 51 PINS P-TWO 187059-51221 | S | AB      | AF      |
|                             |         | PRDARA577WJFW  | BL CHASSIS                                | S | AA      | AD      |
|                             |         | TLABN01348MZZ  | CHASSIS LABEL 35X10MM                     | S | AA      | AA      |
|                             |         | PSPA2C213WJKZ  | HEAT CONDUCTOR SPACER                     | S | AA      | AD      |
| LE210E/LE220E DUNTKF640FM** |         |                |   |   |         |         |
| LED Unit                    |         |                |   |   |         |         |
| DIODES                      |         |                |   |   |         |         |
|                             | D 5103  | RH-PXA195WJQZY | LED DIODE SMD BLUE/RED SML522BUWT86 ROHM  | S | AA      | AC      |
| CAPACITORS                  |         |                |   |   |         |         |
|                             | C 5102  | RC-KZA237WJZZY | CERAM. C EMK2128J106KGT 10UF 16V 10%      | S | AA      | AA      |
| RESISTORS                   |         |                |   |   |         |         |
|                             | R 5101  | VR5-CY1JF101JY | RES 0603 100 OHM 5% 1/10W SMD             | S | AA      | AA      |
|                             | R 5108  | VR5-CZ1JF121JY | RES 0402 120 OHM 5% 1/16W SMD             | S | AA      | AA      |
|                             | R 5109  | VR5-CY1JF101JY | RES 0603 100 OHM 5% 1/10W SMD             | S | AA      | AA      |
| MISCELLANEOUS PARTS         |         |                |   |   |         |         |
|                             | P 5101  | QPL6NA916WJZZY | CONNECTOR A1251WRO-5P5-5E JTW             | S | AA      | AB      |
|                             | RMC5101 | RRMCUA053WJZZ  | R/C RECEIVER UNIT                         | S | AA      | AD      |
|                             | SLD5101 | PSLDFA076WJFW  | SHIELD CASE                               | S | AA      | AA      |
| DUNTKF534WE02               |         |                |   |   |         |         |
| KEY Unit                    |         |                |   |   |         |         |
| RESISTORS                   |         |                |   |   |         |         |
|                             | R 4051  | VRD-RA28E822JY | RES 8,2KOHM 5% 1/8W                       | S | AA      | AA      |
|                             | R 4052  | VRD-RA28E123JY | RES 12K OHM 5% 1/8W                       | S | AA      | AA      |
|                             | R 4053  | VRD-RA28E822JY | RES 8,2KOHM 5% 1/8W                       | S | AA      | AA      |
|                             | R 4054  | VRD-RA28E123JY | RES 12K OHM 5% 1/8W                       | S | AA      | AA      |
| MISCELLANEOUS PARTS         |         |                |   |   |         |         |
|                             | P 4051  | QCNCA012JDE0   | CONNECTOR S48-EH                          | S | AA      | AA      |
|                             | S 4051  | QSW-K0003AJZZ+ | SWITCH EVQ-11A-05R_A MATSUSHITA           | S | AA      | AA      |
|                             | S 4052  | QSW-K0003AJZZ+ | SWITCH EVQ-11A-05R_A MATSUSHITA           | S | AA      | AA      |
|                             | S 4053  | QSW-K0003AJZZ+ | SWITCH EVQ-11A-05R_A MATSUSHITA           | S | AA      | AA      |
|                             | S 4054  | QSW-K0003AJZZ+ | SWITCH EVQ-11A-05R_A MATSUSHITA           | S | AA      | AA      |
|                             | S 4055  | QSW-K0003AJZZ+ | SWITCH EVQ-11A-05R_A MATSUSHITA           | S | AA      | AA      |
|                             | S 4056  | QSW-K0003AJZZ+ | SWITCH EVQ-11A-05R_A MATSUSHITA           | S | AA      | AA      |
|                             | S 4057  | QSW-K0003AJZZ+ | SWITCH EVQ-11A-05R_A MATSUSHITA           | S | AA      | AA      |
| LE210E/LE220E RDENCA412WJQZ |         |                |   |   |         |         |
| POWER Unit                  |         |                |   |   |         |         |
|                             |         | RDENCA412WJQZ  | POWER WITH LED DRIVER 24" (FSP046-3F501)  | S | AV      | B6      |



## Supplied accessories

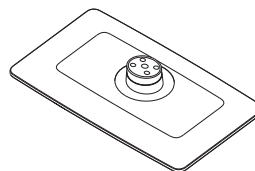
Remote control unit  
(× 1)

AC cord (× 1)



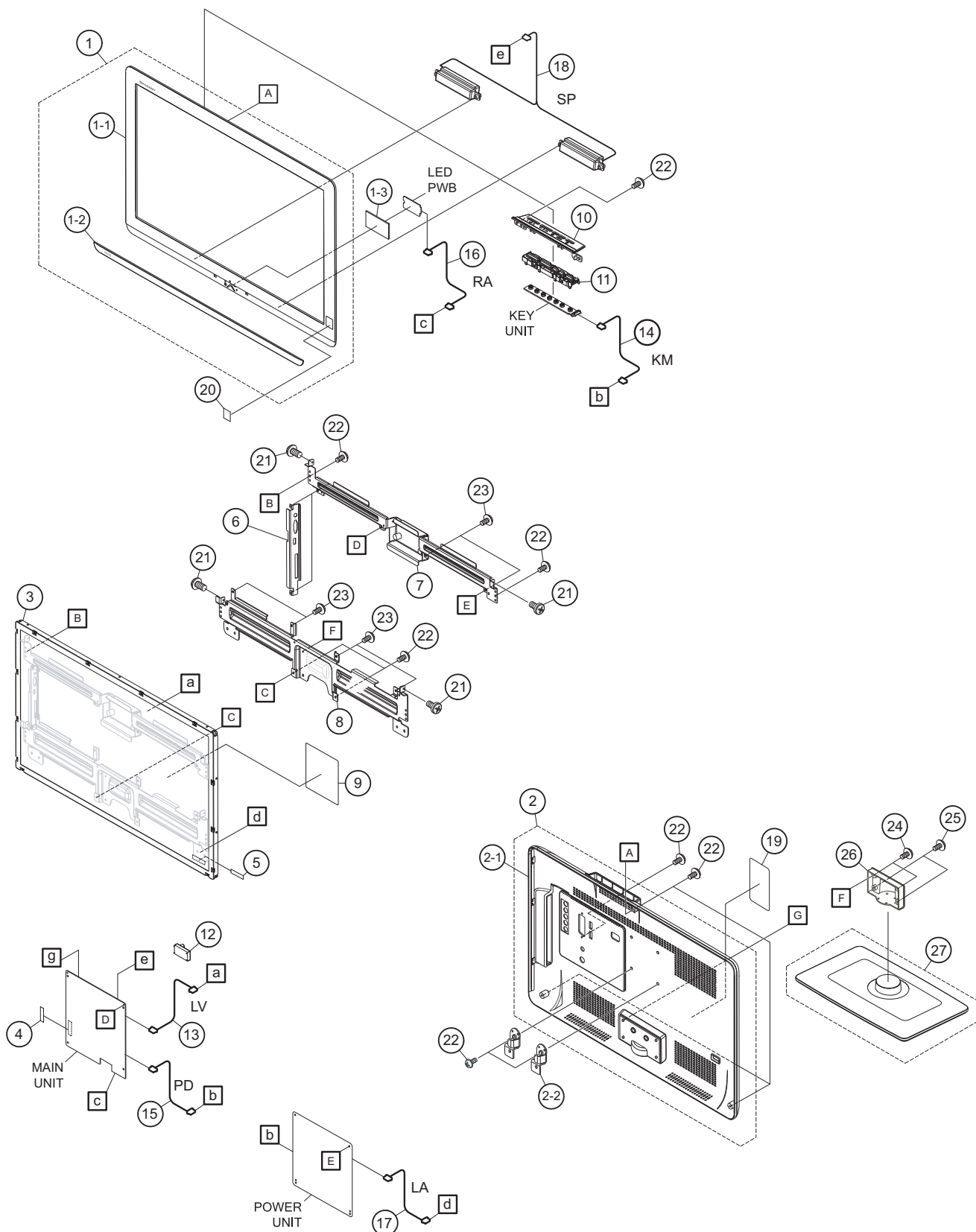
Product shape varies in  
some countries.

- “AA” size zinc-carbon battery (× 2)
- Operation manual
- Stand unit (x1)



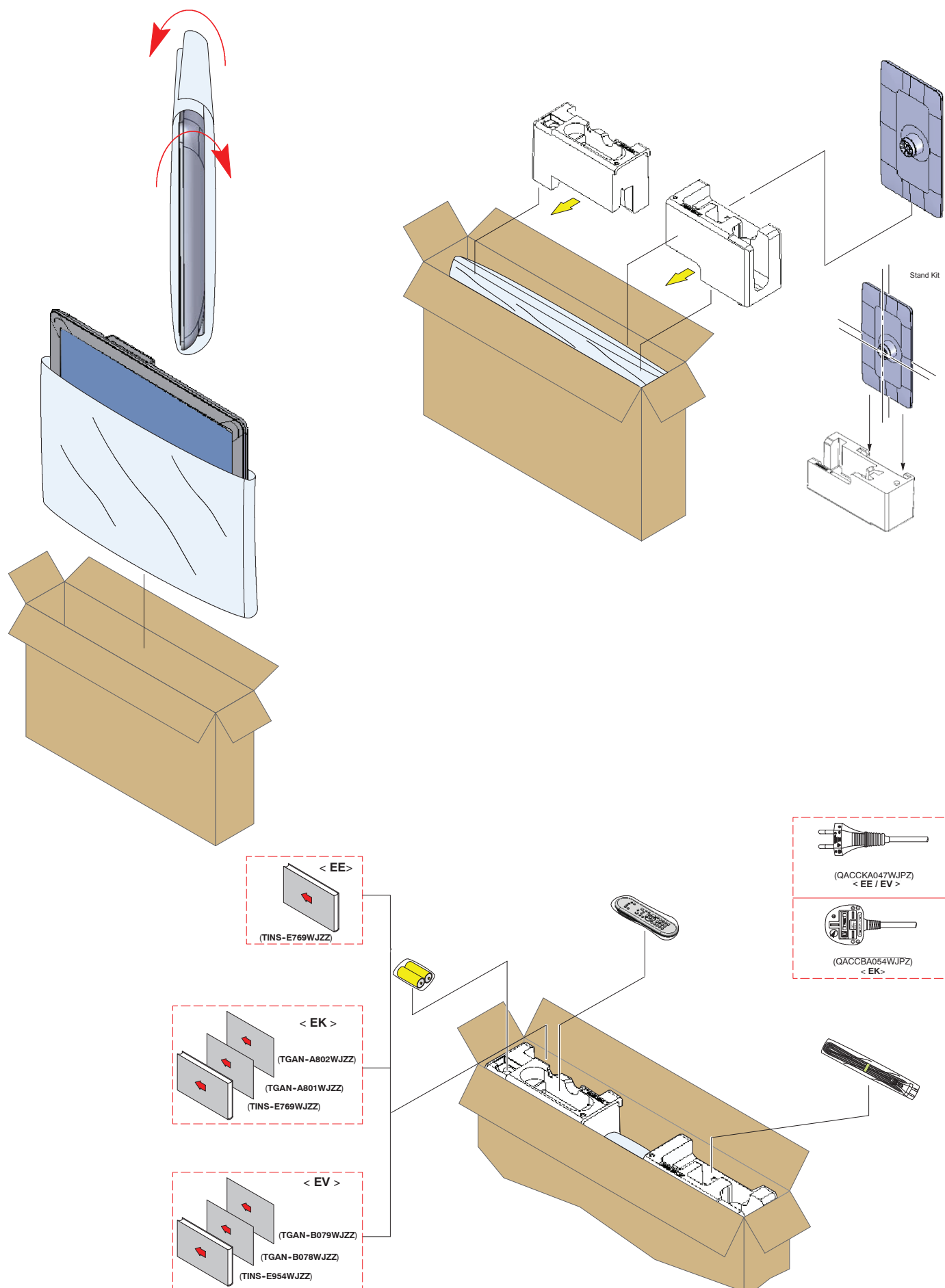
| REF No.  | PARTS          | DESCRIPTION   | * SN CODE | EX CODE |
|--|----------------|---|-----------|---------|
| <b>LE210E/LE220E CABINET PARTS LISTING</b>     |                |   |           |         |
| 1  | CCABAC617WJ01  | KS-CAB-A LC24LE210E   | S         | --      |
| 1  | CCABAC617WJ02  | KS-CAB-A LC24LE220E   | S         | --      |
| 1  | CCABAC617WJ03  | KS-CAB-A LC24LE220EFCB  | S         | --      |
| 1-1  | 6CABAC617WJ1A  | Cabinet LC24LE210E-220E   | S         | --      |
| 1-1  | 6CABAC617WJ1B  | Cabinet LC24LE210EFCB   | S         | --      |
| 1-2  | HDECQ8507WJ1A  | Decoration panel LC24LE210E   | S         | --      |
| 1-2  | HDECQ8507WJ1B  | Decoration panel LC24LE220E   | S         | --      |
| 1-2  | HDECQ8507WJ1C  | Decoration panel LC24LE210EFCB  | S         | --      |
| 1-3  | PSHEPB110WJ1K2 | Diffuser sheet  | S         | AA      |
| 2  | CCAB88855WJ01  | KS-CAB-B LC24LE210E-220E  | S         | --      |
| 2  | CCAB88855WJ02  | KS-CAB-B LC24LE210EFCB  | S         | --      |
| 2-1  | 6CAB88855WJ1A  | Rear Cabinet LC24LE210E-220E  | S         | --      |
| 2-1  | 6CAB88855WJ1B  | Rear Cabinet LC24LE210EFCB  | S         | --      |
| 2-2  | LANKDD044WJFW  | Angles (Vesa)   | S         | AA      |
| 3  | RLK236D3LF21Y  | PANEL 24" 50Hz FHD CMI LED M236H3-LA2   | S         | BS      |
| 4  | TLABND134BMZZ  | Chassis Label   | S         | AA      |
| 5  | TLABND134BMZZ  | Panel Label   | S         | AA      |
| 6  | LANGKD039WJFW  | Connectors Angle  | S         | AB      |
| 7  | CANCKD040WJ01  | Upper Angle   | S         | AG      |
| 8  | LANGKD041WJFW  | Lower Angle   | S         | AF      |
| 9  | PZETKA572WJ1K2 | Insulation sheet  | S         | AD      |
| 10   | 6COVAD819WJ1A  | Control Cover LC24LE210E-220E   | S         | --      |
| 10   | 6COVAD819WJ1B  | Control Cover LC24LE210EFCB   | S         | --      |
| 11   | J8TN-A887WJ1A  | Control Button LC24LE210E-220E  | S         | --      |
| 11   | J8TN-A887WJ1B  | Control Button LC24LE210EFCB  | S         | --      |
| 12   | RTUDAA065WJQZ  | TUNER TDTW-S723D  | S         | AM      |
| 13   | QCNW-L296WJQZ  | Wire (LV)   | S         | AG      |
| 14   | QCNW-L300WJQZ  | Wire (KM)   | S         | AB      |
| 15   | QCNW-L301WJQZ  | Wire (PB)   | S         | AC      |
| 16   | QCNW-L302WJQZ  | Wire (RA)   | S         | AB      |
| 17   | QCNW-L297WJQZ  | Wire (LA)   | S         | AB      |
| 18   | RSP-ZA490WJZZ  | Speakers  | S         | AK      |
| 19   | TLBNCI17WJZZ   | Model Label   | S         | AA      |
| 20   | TLABZC354WJZZ  | ECO Label on A_Cab ( Except Russian models)   | S         | AA      |
| 20   | TLABZC702WJZZ  | ECO Label on A_Cab ( LC24LE210EFCB)   | S         | --      |
| 21   | XBP5730P6W50   | Screw, x 4 (Fix upper and lower angles to panel, laterals)                            | S         | AA      |
| 22   | XEB5730P08000  | Screw, x 11 (Fix upper, lower angle to A_Cab, euro control button and B_cab to A_cab) | S         | AA      |
| 23   | XHP5730P06W50  | Screw x 8 (Fix Main, Power Pwb and Connectors angle)                                  | S         | AA      |
| 24   | XBB5740P10000  | Screw x 2 (Fix Stand neck to A_Cab, upper area)                                       | S         | AA      |
| 25   | XEB5740P16000  | Screw x 2 (Fix Stand neck to A_Cab, lower area)                                       | S         | AA      |
| 26   | 6COVAD877WJ1A  | Stand Neck  | S         | AF      |
| 27   | CDAT-A698WJ01  | KS-Stand LC24LE210E-220E  | S         | AS      |
| 27   | CDAT-A698WJ02  | KS-Stand LC24LE210EFCB  | S         | --      |
| <b>LE210E/LE220E ACCESSORIES PARTS LISTING</b> |                |   |           |         |
|  | CCOVAD819WJ01  | KS-KEY COVER LC24LE210E-220E  | S         | AD      |
|  | CCOVAD819WJ02  | KS-KEY COVER LC24LE210EFCB  | S         | --      |
|  | DLAB-D014WE01  | LABELS SET - LC24LE210EE  | S         | --      |
|  | DLAB-D015WE01  | LABELS SET - LC24LE220EE  | S         | --      |
|  | DLAB-D029WE01  | LABELS SET - LC24LE210EK  | S         | --      |
|  | DLAB-D039WE01  | LABELS SET - LC24LE210EFCB  | S         | --      |
|  | DLAB-D720WE01  | LABELS SET - LC24LE210EV  | S         | --      |
|  | DLAB-D721WE01  | LABELS SET - LC24LE220EV  | S         | --      |
|  | RRMG6A896WJ5A  | R/C YK7204-019 LE220E   | S         | AE      |
|  | TINS-E769WJZZ  | OWNERS MANUAL LC24LE210-220E  | S         | AD      |
|  | TINS-E954WJZZ  | OWNERS MANUAL LC24LE210-220E EASTERN COUNTRIES  | S         | --      |
|  | TLABND978WJZZ  | CHASSIS LABEL   | S         | AA      |
|  | TLABND982WJZZ  | ORIGINAL FCB LABEL- LC24LE210EFCB   |           |         |
|  | TLABZB310WJZZ  | PROCESS LABEL REEL 293m(2.930umid) 100mm  | S         | AA      |
|  | TGAN-A801WJZZ  | GUARANTEE FOR LC24LE210E - UK COUNTRY   | S         | --      |
|  | TGAN-A802WJZZ  | GUARANTEE / AQUOS CARE PLAN - UK COUNTRY  | S         | --      |
|  | TGAN-B078WJZZ  | GUARANTEE FOR LC24LE210E/220E - EASTERN COUNTRIES                                     | S         | --      |
|  | TGAN-B079WJZZ  | GUARANTEE FOR LC24LE210E/220E - EASTERN COUNTRIES                                     | S         | --      |
|  | UBATU023WJZZ   | BATTERY R6UW/C/25KD x2  | S         | AA      |
|  | QACCKA047WJZ   | AC CORD / LP21 L57 - ONLY FOR EE/EV AND EFCB MODELS                                   | S         | AC      |
|  | QACCKA054WJZ   | AC CORD / LP81 L57 - ONLY FOR UK COUNTRY  | S         | AD      |
|  | LANGKD040WJFW  | TOP ANGLE   | S         | --      |
|  | NSFTZA454WJF7  | INSERT BOSS M4  | S         | AA      |
|  | HDECQ8506WJ1A  | LED DECORATION LC24LE210E-LC24LE220E  | S         | --      |
|  | HDECQ8566WJ1A  | STAND SILVER DECORATION LC24LE210EFCB   | S         | --      |
|  | PSPAZC596WJZZ  | DECORATION ADHESIVE 24"   | S         | AA      |
|  | GDAT-A698WJ1A  | STAND   | S         | --      |
|  | TLABM5584BMZZ  | PAPER LABEL / ON CARTON BOX   | S         | AA      |
| <b>LE210E/LE220E PACKING PARTS LISTING</b>     |                |   |           |         |
|  | SPAKCF857WJZZ  | PACKING CASE LC24LE210E-220E  | S         | AD      |
|  | SPAKCF937WJZZ  | PACKING CASE LC24LE210EFCB  | S         | --      |
|  | SPAKP8586WJZZ  | HOSO-PP   | S         | AB      |
|  | SPAKXD073WJZZ  | PACKING ADD   | S         | AE      |

## CABINET AND MECHANICAL PARTS



For the details of Cabinet and Mechanical Parts Listings, see page 73.

## PACKING OF THE SET





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